Consumer Reference Group

SUBMISSION TO AER RETURN ON EQUITY

9 OCTOBER 2020

Executive Summary

Background

In May 2020, the Australian Energy Regulator (AER) initiated two concurrent reviews relevant to its decisions on the regulated Rate of Return (RoR) and revenue allowances for the regulated electricity and gas distribution and transmission networks. The two reviews relate to:

- The AER's approach to the estimation of inflation to be completed by December 2020; and
- The Rate of Return Instrument (RoRI) to apply from 1 January 2023 as required by the National Electricity Law (NEL) and the National Gas Law (NGL).

In June 2020, the AER appointed the Consumer Reference Group (CRG) to represent the consumer perspectives and interests in these review processes. The CRG's role with respect to the RoR Instrument is set out in the NEL and NGL which state that the CRG may:[1]

- Consult with consumers of electricity and gas;
- Facilitate consumer engagement in the process for making the instrument; and
- Make written submissions to the AER about the content and the process for making the RoR instrument.

Commencing in May 2020, the AER released a series of draft working papers on inflation and the RoR. The CRG has responded to each of these working papers through submissions to the AER and presentations at public forums.

Within the current time and resource constraints, we have also consulted with consumer representatives, including advocates to inform our early views on each of these issues. To ensure that the AER's final decision on the 2022 RoRI reflects consumer preferences and is in their long-term interests, the CRG is planning to undertake a more extensive program of consumer engagement to commence in early 2021

In August 2020, the AER published a draft working paper on the regulated Return on Equity (RoE),[2] along with two consultants' reports. The AER commissioned Partington and Satchell[3] to review the AER's current methodology for estimating the RoE and to consider alternative models that may contribute to the AER's 2022 RoE estimate. The AER also commissioned

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1 National Electricity Law, Part 3, Div 1B, Sub Division 3, clause 18N(2); NGL, Chapt2, Part 1, Div1A,

2 Australian Energy Regulator, August 2020, *Rate of return, CAPM and alternative return on equity models*, https://www.aer.gov.au/system/files/Rate%20of%20return%20-%20CAPM%20and%20alternative%20return%20on%20equity%20models%20-%20Draft%20working%20paper%20-%2027%20August%202020_2.pdf

3 Partington, G. & S. Satchell, June 2020, *Report to the AER: Alternative Asset Pricing Models, See Partington and Satchell*, https://www.aer.gov.au/system/files/Report%20to%20the%20AER%20-%20Alternative%20Asset%20Pricing%20Models%20-%2030%20June%202020.pdf.

The Brattle Group[4] to review international approaches to RoE and advise whether the AER's approach could be modified given these alternative approaches.

The three published papers highlight the complexity of estimating the expected RoE and the challenges that arise from limited data available to provide empirical validation of the theoretical constructs that form the basis of estimating the RoE. They also illustrate how different methodologies and assumptions complicate the assessment process.

Nevertheless, the AER is tasked with determining a RoE that best contributes to the national electricity objective (NEO) and the national gas objective (NGO). These objectives state that the AER's decision must be in the long-term interests of consumers. For this reason, it is important that the AER's decision on the RoE is based on a transparent application of the NEL and NEG.

This submission sets out the CRG's preliminary response to issues raised in the AER's RoE draft working paper, noting that the AER's paper is focussed on the selection of RoE model (or models) appropriate for regulatory use.[5]

The CRG's submission contends the RoE parameter values in the 2018 RoRI, such as the market risk premium (MRP) and the equity beta (beta), were higher than required for a benchmark efficiently financed regulated network. However, the CRG also concludes that the changes in the AER's overall approach in the 2018 RoRI represented a significant step towards promoting the NEO and the NGO when compared to the approach the AER adopted in the *2013 RoR Guideline*.

This CRG submission also reflects evidence of consumer perspectives gathered from our interviews with representatives of industrial, commercial, residential and agricultural consumers and an investment analyst. This feedback helped inform the CRG's conclusions around a strong consumer preference for the AER to provide stability and continuity based on the AER's approach to the RoE in 2018.

As we discuss further in this submission, despite the networks' concerns with the 2018 RoRI, there is no compelling evidence from our market analysis that the network businesses have been unable to attract debt and equity providers.

CRG responses to AER questions

In this submission, the CRG has responded to the questions raised by the AER in its draft working paper. However, our response extends beyond the specific questions asked by the AER as we believe it is also essential to consider the broader regulatory and legal context for the selection of the RoE model(s). We provide more context in Section 1.1.

The CRG also believes that the review of the RoE models requires agreement on the principles and criteria the AER should use when selecting the relevant RoE model(s). The

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[4] The Brattle Group, June 2020, *A review of international approaches to regulated rates of return, Prepared for the Australian Energy Regulator*, https://www.aer.gov.au/system/files/Report%20to%20the%20AER%20-%20A%20Review%20of%20International%20Approaches%20to%20Regulated%20Rates%20of%20Return%20-%2030%20June%202020.pdf.

[5] Australian Energy Regulator, August 2020, p.2.

CRG agrees with the AER's criteria of reliability/free from bias, relevance, suitability and simplicity. However, we strongly recommend the AER should also exercise its judgement by reference to the following:

- The criteria identified by Partington and Satchell that the model is implementable, widely accepted and used, stood the test of time, has the least error and/or bias and there are limited opportunities for gaming.
- The five *consumer* principles developed by the CRG, which prima facie reflect issues that are important to consumers namely:
    - Promote behaviours that engender consumer confidence in the regulatory framework;
    - Test against consumer impacts on prices;
    - Test against impacts on service standards;
    - Risks are borne by those best placed to manage them; and
    - There should be a high bar to change.

Section 2 of our submission provides further details on the AER's and Partington and Satchell's criteria and the CRG's consumer principles.

In addition, this submission considers feedback from our interviews with a number of consumer and industry representatives (listed in Appendix A). Section 3 contains details of the CRG's consumer evidence. Section 1.3.1 provides a summary of this information.

We also examined market information on the two ASX listed companies whose revenues and profits came very largely from regulated networks to understand if there was evidence of company distress following the 2018 RoRI and/or forecasts of such distress. Section 4 sets out our findings, which are summarised below.

Consumer and stakeholder perspectives

The CRG has developed a best practice *Consumer Engagement Framework* to guide its engagement activities and a copy is appended to our submission. Our *Framework* guided our consumer engagement to inform this submission.

Section 3 provides details of the CRG's investigations and engagement to inform our views on consumer perspectives associated with the RoE. In summary, the CRG's broad engagement objectives were grouped into non-technical and technical themes, as follows:

- Non-technically themed objectives:
    - Establish consumer perspectives of trust and confidence in the network claims related to RoR issues;
    - Establish consumer perspectives associated with AER's decision making on RoR, and in particular around the extent consumers believe decisions are fair; and
    - Understand potential impacts of price changes on residential and business consumers and their likely responses.
- Technically themed objectives:

- Establish consumer perspectives associated with a possible change to the AER's approach on calculating RoE;
- Establish consumer perspectives associated with risk sharing; and
- Assess consumer confidence in investing in regulated energy network companies compared to investing in other sorts of businesses.

To answer questions related to these objectives, CRG members interviewed a total of nine consumer representatives, including advocates representing a range of consumer groups from residential consumers to major energy users. We also interviewed one investor to provide an alternative perspective.

Based on the interviews with ten consumer representatives (and one investor analyst), the CRG has established the following:

- Consumer representatives generally have low levels of confidence and trust in the networks on RoR issues, although some advocates noted the introduction of the legislated RoR Instrument may have resulted in a more cooperative approach between parties on this issue.
- Consumer advocates highlighted the resource asymmetry between networks and consumers, and they believe this impacts on differences of influence on the AER's decisions by networks and consumers.
- All consumer representatives acknowledge energy prices are important cost inputs for consumers.
    - Several noted while many residential consumers have a limited opportunity to reduce their energy use to compensate for price increases, this does not mean they are insensitive to higher prices. The CRG is aware from other consumer engagement that this exposure to higher prices is a particularly concerning issue for the most vulnerable consumers.
    - The CRG also heard that business consumers had a greater propensity to respond to higher network prices (actual and expected) by seeking better deals or modifying their energy use.
- While some advocates suggested significant numbers of consumers may turn to utilising alternative energy sources if network prices become too high, others emphasised it was a fallacy to suggest consumers (particularly residents) would save money by investing in alternative energy sources.
- The consumer representatives who were confident to comment (seven consumer representatives and one investor analyst) on technical issues believe:
    - The AER should maintain a consistent approach in its RoR Instrument and to not accept the use of the Divided Growth Model (DGM), or similar models, as they do not consider additional forecasting adds value.
    - The AER should continue to rely on historical data, rather than forecasts in relation to the Market Risk Premium (MRP).
    - The current equity beta does not reflect the risks faced by energy networks. This view was summed up by one advocate who commented, "electricity

networks must be just about the safest businesses in the country" because their revenue is safeguarded at a difficult financial time.

- All participants considered that investment by networks was more likely to be over five to ten 5-10 years minimum (rather than a three years); they also observed that under the regulatory framework investment by networks guaranteed returns over the longer-term, with some participants noting the life of many network assets is closer to 50 years.
- Most participants believe consumers should get compensated for the risk of having to face additional changes to price levels year-on-year if the risk-free rate was annually updated, and consumers should be compensated for the transfer of any additional risks to them.

From the interviews the CRG identified two overarching themes, which are being further considered by the CRG:

- A bar for any change needs to be high when considering the RoR methodologies; and
- The concept of "consumption efficiency" or the efficient utilisation of the network infrastructure,[6] which links to the behavioural response of consumers to price changes.

Market information

The CRG reviewed the annual reports and public statements to the ASX of two network service providers, Spark Infrastructure and AusNet Services. We note over 80% of the revenue and profits of these two businesses comes from their regulated network operations.

Both businesses had seen significant growth in their compound annual returns (CAGR) and dividend pay-outs over the last five years. Their most recent reports suggest a pause in this growth in earnings and dividend payouts to shareholders in the last year. However, there was no indication of financial distress or reduction in their credit ratings. Nor was there evidence of any difficulties in raising funds for future operations and expansion of their business– sometimes to be used to expand non-regulated businesses such as solar farms.

We also examined their share prices over the last year, especially given market challenges over the last six months of the COVID-19 crisis. Despite network claims that the AER should adjust its settings to reflect these 'current' events, the share prices of both companies remained considerably more stable than the overall top 100 ASX listed indices and have quickly recovered since a dip in prices March-April 2020.

We discuss this resilience of regulated network businesses in Section 4.

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[6] The National Electricity Objective (NEO) and the National Gas Objective (NGO) include a requirement to promote efficient investment in, and **efficient operation and use of electricity/gas** in the long-term interests of consumers. Similarly, the Revenue and Pricing Principles (RPPs) state that the economic efficiency that should be promoted includes the **efficient use of the distribution or transmission** system.

Overview of the CRG's response to AER questions

For convenience, we have summarised below our responses to the specific questions raised by the AER in its draft working paper. Section 6 expands our reasoning on the estimation of the overall RoE, the market risk premium (MRP) and equity beta.

i. The AER is seeking views on whether change to its current RoE approach are necessary or desirable given The Brattle Group's suggestion that the AER should consider including an explicit forward-looking element in the construction of the RoE.

The CRG has considered the two consultant reports, the AER's 2018 decision on the RoR, the Expert Panel's review of the AER's draft 2018 decision and a number of the submissions to the AER as part of the current and 2018 reviews of the RoRI.

The CRG concludes that the existing approach to estimating a forward-looking MRP based on the analysis of historical excess returns (HER) with some cross-checks remains the most appropriate basis for estimating this component of a forward-looking RoE.

The alternative forward-looking estimates of the MRP, such as the DGM, do not meet the AER's model selection criteria, are subject to gaming, not widely used and do not satisfy the consumer principles established by the CRG. The use of such models alone or in combination with the HER will not contribute to the NEO or the NGO.

ii. The AER is considering whether other approaches such as surveys could inform the AER's choice of the MRP.

The CRG concludes that surveys and other market data may serve as a cross-check to the AER's assessment of the HER, although it is not clear to us which cross-checks are appropriate and how they might inform the AER's decision on a point estimate of the MRP. At best, these cross-checks may provide directional support to the AER's decision. However, it is important that the AER establishes clear, consistent and theoretically sound links between market-based cross-checks such as market volatility, dividend yields and the MRP or the overall RoE.

iii. The AER seeks stakeholder views on whether there is a relationship between movements in the risk-free rate and the MRP, and if so, how this might be reflected in the AER's approach.

The CRG rejects the "Wright" approach,[7] which contends that the real RoE is constant over time such that the MRP moves to offset any changes in the risk-free rate. More specifically the Wright approach proposes there is a 'one-for-one' inverse relationship between the MRP and the risk-free rate. Such an assumption is not supported in any consistent way by the empirical data and would lead to MRP results that do not make sense from either a practical or theoretical perspective. The

[7] The "Wright" approach is based on the work of Wright and Smithers for the UK regulator, Ofgem. See for instance, Wright, S. and A. Smithers, 2014 "The cost of equity capital for regulated companies: A review for Ofgem".

AER's HER analysis proves to be stable over many sampling periods, suggesting the claimed inverse relationship of the MRP with the risk-free rate does not exist in practice.

Moreover, when the risk-free rate is relatively high, or low, compared to its average a model that defines the MRP as the difference between a 'set' RoE and the risk-free rate will lead to improbable estimates of the MRP such as a negative value for the MRP. Partington and Satchell have also identified this issue when the risk-free rate is very high, stating:[8]

> *"In the most elementary models of investor behaviour, negative risk premiums are not possible for risk averse investors."*

Ultimately, the evidence for imposing some direct relationship between the risk-free rate and the MRP (instead of treating them as independent observations) requires the AER to make arbitrary decisions on this relationship at different points of time. As such it is not suitable for regulatory purposes. It would also require the networks to accept very low MRP estimates. or consumers to accept very high MRP estimates. at different time periods.

For these reasons, the CRG recommends that the AER not utilise the Wright approach, or any modification of this, to determine or constrain the estimate of the MRP or the overall RoE.

iv. The AER seeks stakeholder views on how it should develop beta estimates that are representative of the risks associated with the regulated entities.

The CRG understands this question has two components. The first is whether the equity beta should be estimated using a shorter series of more recent data with daily or weekly return observations. The second component of the question is whether the AER should use international firms in the comparator set for estimating the equity beta.

We recognise the significant problem facing the AER given that only two relevant networks are listed on the ASX with publicly available information (the third listed network has less than 15% regulated assets). Our preliminary views are:

- The AER should not seek to be more reflective of current market conditions or to rely on a shorter analysis period for estimating a forward-looking equity beta.

  The AER is making a determination for a 5-year regulatory period but does so within the overall framework of long-term returns on long-lived assets. The AER's role therefore is not to react to current market conditions that are likely to be temporary, but to estimate the average equity beta relevant to a 5-10 year plus investment horizon. The evidence to date is that beta estimates based on a longer period and taken monthly rather than daily or weekly provide more reliable and stable estimates of beta. This, in turn, is both good regulatory practice and is in the long-term interests of consumers.

[8] Partington & Satchell, June 2020, p.23.

- The CRG has significant concerns with the use of international data to support the AER's analysis of the equity beta. In principle, more data may produce more statistically robust results. However, this will not enhance the beta estimate if the additional data is not relevant to estimating the equity beta for the benchmark efficient regulated network in Australia. The CRG recognises that Brattle has attempted to 'normalise' the international comparator data, but we are not satisfied that the results overcome the difficulties of using such data. In addition, it is not clear to us how the AER would use such data to inform its decision.

v. The AER seeks stakeholder views on the Brattle Group's suggestion that it employ multiple RoE models aside from the SL-CAPM and the DGM.

The Partington and Satchell report considered a number of alternative equity models and concluded that: "the only model that satisfies the criteria listed by the AER is the SL-CAPM, and recent evidence strengthens this recommendation".[9]

The CRG agrees with their assessment and would add that the SL-CAPM appears to be the model that best satisfies the CRG's consumer principles.

The inclusion of additional models significantly reduces transparency and reliability of the RoE estimate and the result is difficult to interpret as the models come from different theoretical frameworks. More does not mean better.

The opportunity for gaming also increases given the potential complexity of the models, the subjective nature of the input assumptions, and the arbitrary weighting of each of the models without a clear foundation in theory or practice. Adopting such an approach would, therefore, fail to comply with either the AER's regulatory principles or the CRG's consumer-based principles. Such an approach creates distrust and uncertainty and is quite clearly not in the long-term interests of consumers.

vi. The Brattle Group has suggested the AER consider annual updating of the risk-free rate to minimise the mis-match risks facing the networks.

The AER does not specifically seek feedback on this proposal by Brattle. Nevertheless, the CRG has briefly considered this matter and we do not believe it is appropriate to introduce this change. While the proposed change notionally reduces the mis-match risks faced by the networks between the allowed RoE and the realised RoE, the CRG highlights the following:

- It would be a fundamental change to the underlying CAPM theory of estimating ex-ante investor expectations for a RoE over a regulatory period; through a process of annually correcting the expected RoE (including expectations for the risk-free rate) for the ex-post 'realised' risk-free rate.
- It would introduce additional complexity and volatility into the annual pricing process.

[9] Partington & Satchell, June 2020, p.8.

- It is likely that a transition process would be required and this transition process introduces new risks for all parties.
- It is not clear how consumers would be rewarded for transfer of risks from the networks to consumers.
- The rationale given for the change does not justify the complexities of such a change and the potential impact on consumers.

Recommended actions

The CRG is recommending the following actions in association with the AER to ensure consumer perspectives are fairly considered, alongside those of other stakeholders:

- Explore with the AER the meaning and value of consumer trust and confidence in regulatory processes and outcomes, and consumers' low tolerance for change to assist the AER in better understanding consumer perspectives and balancing these with the perspectives of investors and networks, particularly given the asymmetry of resources which favour networks.
- Explore with the AER how it can best apply its regulatory principles and criteria, and those consumer principles established of the CRG in its decisions associated with the RoR Instrument.
- Explore ways in which the AER could improve its assessment of consumption efficiency and how the AER might better balance the requirements to consider both investment and consumption efficiency as required by the NEL and NGL.
- In relation to equity beta, develop a comprehensive conceptual and empirical framework for assessing systematic risk of the networks.
- Develop a clearer framework for assessing how the systematic risk of different sectors of the network industry can be identified and applied to the RoR Instrument.
- Identify useful cross-checks for assessing the AER's RoR decisions, including the financial performance measures, and how the AER can best take account of these in its RoE decisions.
- Review the current incentives for efficient financing of the networks and whether these incentives can be modified to better align with the AER's overall benefit sharing incentive framework.

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1 Submission context

1.1 AER NEL and NGL obligations

The CRG contends that the selection of the appropriate model(s) must first take account of the legal and regulatory obligations that it operates under.

As a result, the CRG has carefully reviewed the AER's obligations under the NEL and NGL that arise from the national energy objectives (NEO and NGO), the RPPs and the laws relating to the RoRI.

This review has led us to be particularly concerned with the over-riding focus of the AER, and the two consultant papers, on investment efficiency without equal regard for consumption efficiency, consumer preferences and behaviour.

We agree that Australia is now part of an international capital market. However, while networks stress that capital can go anywhere in the world, we would also highlight that international capital is looking for places to invest. This is particularly the case in a world where there are record low bond yields and record levels of monetary stimulus. We see headlines such as *"global capital markets smash records"*.[10] For example, In July 2020, Refinitiv states that gains in global capital markets followed unprecedented monetary stimulus, and global capital markets in the first half of 2020 raised the highest amount since 2015. There is no evidence that the Australian listed networks have had any difficulty raising equity funds directly or through dividend reinvestment programs (or debt) – see Section 4 for further details.

In addition, international pension funds and sovereign wealth funds hold significant capital reserves and fixed prudential requirements to meet future obligations. These funds are seeking safe long-term reliable returns rather than short-term volatile returns. The capital supply/demand curve is not as simple as portrayed by the networks.

More relevantly perhaps, the CRG highlights the AER's obligations in the NEO, the NGO and the Regulatory Pricing Principles (RRPs) to equally consider **efficient investment and efficient consumption** in their decision. The trade-off between these two factors is highlighted in the NEL and NGL as follows [emphasis added]:[11]

The NEO/NGO state:

> "To promote efficient investment in, and efficient operation **and use of electricity service**s in the long-term interests of consumers … with respect to price, quality, safety and reliability".

The RPPs state:

> "…the economic efficiency that should be promoted includes:
>
> a) Efficient investment in the distribution system or transmission system…

[10] Refinitiv perspectives, July 16, 2020, https://www.refinitiv.com/perspectives/market-insights/global-capital-markets-smash-records

[11] NEL cl. 7; NGL, cl. 23.

b) An efficient investment in the provision of electricity [gas] network services

c) **The efficient use of the distribution system or transmission system**".

1.2 Importance of assessing consumption efficiency for consumers

The CRG considers the AER's selection of model(s) and the approach to each parameter in the model(s) must clearly address both efficient investment and efficient consumption.

Further, we contend to date, the AER has not adequately addressed its obligation to equally consider efficient investment and efficient consumption. For example, the AER has not formally considered the impact of its decisions on consumer behavioural response to any potential price increases arising from its RoR decisions.

Further, the AER has not adequately considered that consumers have greater opportunities to withdraw from using network services if they believe prices do not represent value for money and/or network charges will continue to rise (as they did between 2009 and 2015). As one advocate for commercial enterprises said, increases in network prices would leave customers *"turning away from the network, not towards it*"

1.3 Independent Panel 2018 advice and the AER's 2018 response

In 2018, the AER appointed an Independent Panel (the Panel) to review the draft RoRI guideline and to establish whether the guideline is supported by sound reasoning based on available information, such that it is capable of "promoting achievement of the national gas and electricity objectives". [12]

We note that the Panel established that the AER had not taken account of its obligation to consider consumption efficiency alongside investment efficiency. Consequently, we are also concerned that the current papers focus on investment efficiency without considering the interaction of pricing decisions and energy utilisation. We discuss our concerns below and conclude that while the AER acknowledged this issue, it does not appear to have acted on it in its final 2018 RoRI decision.

[12] Australian Energy Regulator, 2018, *Rate of Return Instrument 2018*, Consultation - Independent Panel, https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/rate-of-return-instrument-2018/draft-decision#step-56645

1.3.1 Independent Panel advice on consumption efficiency

In its report on the AER's draft 2018 RoRI[13], the Panel highlighted significant concerns about a lack of evidence of consideration of consumer issues in the AER's decisions. For example, in relation to the allocation of risk it noted:

> *"… there is no indication in the Explanatory Statement that the AER has based its decisions on consumers' willingness to accept higher risk in return for lower price as distinct from methodological considerations".*

It also noted that "consumption efficiency" was not adequately addressed:[14]

> *"…the national objectives also include consumption efficiency, which needs to be addressed as well. In achieving the national objectives,* ***attracting capital is necessary but not sufficient."***

Accordingly the NEO and NGO were not achieved:[15]

> *"The national objectives are achieved not just because of finance theory but by the rational, informed actions of firms and individuals who comprise the regulated industries: debt investors, equity investors, the managers and employees of regulated firms, consumers large and small and the practitioners who represent their interests before regulatory tribunals.* ***The Draft Guidelines will be capable of promoting the national objectives only if it wins the trust of, and induces the efficient conduct of, all those parties".***

The Panel also identified that a price higher than the efficient level will result in an *"inefficient price that suppresses efficient consumption"* and may *"incentivise investment that does not provide benefits commensurate with the cost recouped from consumers"*.[16]

As indicated above, the CRG acknowledges the Panel's findings and shares the same concerns in relation to the current review.

1.3.2 AER 2018 RoRI response to the Panel's findings

The AER noted the Panel's concerns in its December 2018, *RoRI - Explanatory Statement*.[17] The AER also acknowledged submissions from the Consumer Challenge Panel (CCP), the previous CRG, and Energy Consumers Australia (ECA), which raised similar issues.[18]

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[13] Independent Panel, *Review of the Australian Energy Regulator's Rate of Return Draft Guidelines*, 7 September 2018, pp. 66.
Note, the legislation that created the 2018 RoRI passed in December 2018, after the Independent Panel report was published. Hence the Panel refers to a "guideline" rather than an "Instrument".

[14] Ibid, p. 67.

[15] Ibid.

[16] Ibid, p.iv.

[17] Australian Energy Regulator, December 2018, *Rate of Return Instrument – Explanatory Statement, https://www.aer.gov.au/system/files/Rate%20of%20Return%20Instrument%20-%20Explanatory%20Statement.pdf*

[18] Ibid, pp. 38-40.

The AER then stated that higher energy prices might discourage use of network services and encourage consumers to overinvest in downstream investments or disconnect from the network. For business customers, higher energy prices may be passed through to downstream consumers creating further efficiency distortions across the economy.

The CRG agrees with the AER's assessment. We do not, however, agree with the AER's conclusion, namely:[19]

> *"An allowed rate of return that reflects the efficient cost of capital will promote both investment and consumption efficiency."*

We find this conclusion circular and lacking any independent assessment of the presumption that the AER's RoR decisions promote consumption efficiency. As the Panel noted, the NEO and NGO are promoted only if the AER wins the trust of, and induces the efficient conduct of, all parties - including large and small energy consumers. Hence, the CRG's consumer principles highlight the importance of understanding behaviours and the impact of a decision on consumer prices and services.

The implications of this for the AER's approach to the RoE are significant:

- The AER should transparently demonstrate how it has balanced **equally** the risks of over or under estimation of the RoR parameters.
- The AER should consider the impact of its decision on consumer decisions and behaviours, not just those of investors.
- The AER must avoid selecting any 'high' side values on the basis that investors need more than the efficient cost of capital either because of a concern with under-investment or by an excess of caution given the statistical uncertainty bands in the empirical evidence.

Given the flattening of peak demand growth, the steady decline in energy consumption and the excess investment and consequent excess capacity in many of the regulated networks, the risk is now with consumers who face paying higher prices for many years to fund the period of overinvestment.

1.4 Other factors affecting the regulatory framework's integrity

The AER's regulatory framework operates under an incentive framework. Incentive based regulation is predicated on a 'revealed cost' approach to regulatory design. It is supposedly applied in all parts of the building block, including capital expenditure (capex) and operating expenditure (opex) as well as the cost of capital block. The revealed cost approach assumes regulated businesses will seek to beat the AER's allowed costs during the regulatory period. In doing so, the businesses provide a more accurate and up-to-date picture to the regulator of the efficient costs of providing services.

This process of 'revelation' and updating of the regulatory model is assumed to repeat itself in following regulatory periods, thereby promoting the provision of services at their long-run efficient costs. This should ensure consumers are paying no more than necessary for these services.

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[19] Ibid, p. 40.

In the AER's regulatory regime, these incentives are captured through the AER's Efficiency Benefit Sharing Scheme (EBSS) and the Capital Expenditure Sharing Scheme (CESS).[20] While the details are complex, the objective of these schemes is that **over time**, consumers and networks will share in the cost savings on capex and opex. Thus, while networks will benefit if their costs are lower than anticipated, consumers will receive benefits through reduced costs over time.

It is far less obvious, however, how incentive based regulation benefits consumers through the financing cost allowance in the building block model. To date, the CRG observes that:

- If the actual financing costs of a business are lower than the regulated RoR, the network retains the difference;
- If the actual financing costs of a business are higher than the regulated RoR, the business has to make up the difference, but can do so using its balance sheet or ensuring it is more efficient in its operating and capital expenditure; and
- Over the life of an asset, the regulatory model is intended to be NPV neutral.

Even if a regulated business is able to outperform the cost of capital assumed by the regulator, for example, through access to cheaper capital or through financial engineering, [21] these savings are not shared with the consumer. Instead, the benefits are retained by the network investors in the form of a higher than efficient RoE.

For many years the AER has continued to suggest that its estimation of the cost of capital is subject to an incentive-based approach. Only now are the AER developing tools to measure network financial performance. However, the AER has not yet explained how it will use these measures to update its RoR approach and ensure consumers benefit from this.

From a consumer perspective, the lack of a **balanced** incentive regime for the RoR has significant consequences for consumers and for the regulator. For example, the AER's approach to estimating the RoE parameters should not err on allowing a 'safety margin' for networks.[22] Yet, this occurs when:

- The overall regulatory framework provides considerable protection to the networks from other risk exposures through its revenue cap and pass through arrangements.
- The networks have access to various financial mechanisms and cost reductions to limit their exposure to negative real equity returns over the course of a business cycle (as noted above).

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[20] While these schemes operate somewhat differently, the basic principles of sharing overs and under expenditure, and doing so in favour of consumers interests is the same.

[21] For example, a network business can temporarily increase its debt, fund a dividend reinvestment program, employ retained earnings or temporarily reduce dividend payouts.

[22] The CRG made a similar point in Section 1.3 although this was on the basis of the change in the risk between over and under investment given the changing emphasis on reliability improvements versus prices.

- The networks have a strong incentive and extensive resources to challenge the regulator and consumers and/or to cherry pick individual components of the RoR, to achieve a higher overall return.
- It is not apparent that any excess returns will be invested by the networks for long-term interests of consumers. Rather, there is a risk of inefficient investment to increase their regulatory asset base (RAB) as occurred in some jurisdictions between 2009 and 2015. Alternatively, the excess returns may be used by the network to fund new non-regulated business activity or increase dividend payouts to shareholders, as we have observed in recent years before the impact of the 2018 RoRI determination.

Moreover, the above points on the regulatory framework are known at the beginning of each regulatory period. Hence, it can be deduced that businesses will manage their capital structures and operations accordingly. The regulatory model's symmetry and its NPV neutrality means that over the life of an asset, businesses are best placed to manage their cash flows to ensure ongoing efficient financing of their operations over their business cycles.

The CRG considers the AER should be developing and applying a broader measure for assessing the overall efficient cost of capital. A well-designed mechanism would provide networks with an ongoing incentive to lower their costs of capital, while ensuring consumers share in the benefits of these efforts.

In the absence of such a mechanism, the AER cannot claim that "efficiency gains [in the cost of capital] are passed on to consumers" and therefore, it cannot claim to be promoting the long-term interests of consumers as required by the NEO and NGO.

1.5 Forward-looking and backward-looking RoE models

The CRG supports the AER's overall approach to estimating the efficient RoE in the 2018 RoRI. We are strongly against any 'reversion' to the approach adopted in the 2013 RoR Return Guideline.

We consider the reasons set out in the AER's 2018 *RoRI Explanatory Statement*[23] remain valid. We are not persuaded by Brattle's suggestion that the AER include more forward-looking models, such as the DGM, or by the argument that the AER should adopt models that place a greater emphasis on current events. For example, Brattle variously suggests that:

- The AER relies on a MRP that is "essentially backwards-looking"[24]
- The AER should incorporate forward-looking evidence into the cost of equity[25]

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[23] Australian Energy Regulator, December 2018, *Rate of Return Instrument – Explanatory Statement*

[24] The Brattle Group, June 2020, *A Review of International Approaches to Regulated Rates of Return*, , https://www.aer.gov.au/system/files/Report%20to%20the%20AER%20-%20A%20Review%20of%20International%20Approaches%20to%20Regulated%20Rates%20of%20Return%20-%2030%20June%202020.pdf, p. 58.

[25] Ibid.

- There is a risk that the AER's beta measure will fail to give sufficient weight to current financial conditions.[26]

Brattle concludes that:

> *"since the DCF is inherently forward looking, it is particularly beneficial to put some weight on this model if the CAPM implementation is purely backward-looking"*.[27]

However, as we discuss further in Section 6, this statement incorrectly assumes that the AER's approach of using historical data to forecast the future makes it, per se, a backward-looking model. This is not necessarily the case. Historical analysis using data averaged over 30 to 40 years is appropriate to use when forecasting up to 10 years ahead as the historical data will tend to incorporate the impact of economic cycles. In contrast, the forward-looking models such as the DGM are more likely to be overly influenced by the point in the economic cycle when the forecasts were made leading to a bias in the long-term forecasts.

Similarly, we are not convinced by the arguments that the *"current conditions"* are special and need to be explicitly taken into account by the AER in setting long-term RoE parameters.

1.6 Applying a 10-year investment horizon

In support of our position, we refer to AER statements suggesting that the efficient investment it is targeting is based on efficient long-term returns to investors in long-lived assets. For example, in its *2013 Rate of Return Guideline Explanatory Statement*, the AER stated:[28]

> *"The prevailing 10-year CGS yield is a forward-looking rate. The prevailing 10-year CGS yield varies over time. But, this variation does not mean the yield is a 'short term' rate. The prevailing 10-year CGS yield is a market determined yield investors expect on an investment with cash flows over the forthcoming ten-year period. "*

In 2018, the Independent Panel directed the AER to more adequately justify the use of a 10-year term for the risk-free rate. The AER responded in its Final Decision as follows:[29]

> *"We consider a 10 -year term is consistent with the theory of the Sharpe-Lintner CAPM which is a single period equilibrium model, estimating the returns an investor requires over a long-term investment horizon. The 10-year term also reflects the actual investor valuation practices and academic works."*

Consistent with its theoretical position, the AER's estimate of the return on debt is now based on the observed yield on 10-year corporate bonds,[30] and the AER's transition period

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[26] Ibid, p.61.

[27] Ibid, p. 60. The DCF, or discounted cash flow is the general name for models such as the DGM.

[28] Australian Energy Regulator, December 2013, *Better Regulation – Explanatory Statement Rate of Return Guideline*, https://www.aer.gov.au/system/files/AER%20Explanatory%20statement%20-%20rate%20of%20return%20guideline%20-%20December%202013.pdf, p.79.

[29] Australian Energy Regulator, December 2018, *Rate of Return Instrument – Explanatory Statement*, p. 126.

to the trailing average for debt was explicitly tied to this 10-year period. In 2013, the AER was noted as saying: [31]

> *"We propose to adopt the benchmark debt term of 10 years. Therefore, the corresponding transition period would also be 10 years*."

The AER's estimate of the RoE incorporates a risk-free rate based on the yield on 10-year Commonwealth Government Securities (CGS). To date, the AER has also assessed inflation to reflect the 10-year average expected inflation. In its *Draft Decision on Inflation*, the AER is also considering using a five-year horizon for estimating the expected inflation. However, the AER links this draft proposal to the 5-year indexation of the RAB rather than the 10-year CGS yields that form the basis of the RoE.

In the absence of any substantive evidence of a clear and sustained break in network investors' requirements, we consider the AER's approach to the RoE should focus on the long-term expectations of investors and consumers. Forward-looking models, such as the DGM, have dubious applicability beyond 2-3 years as the input assumptions are overly influenced by 'current events' and the errors compound over the longer period.

We also consider that the AER's current approach of using historical excess returns to estimate the MRP is not 'backward-looking'. If the AER now shifts towards including 'forward-looking' estimates such as the DGM, it risks undermining the integrity of the SL-CAPM approach. As such we do not consider it is consistent with the criteria and principles we have outlined above.

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[30] The AER's position is that the average credit rating of an efficient benchmark network entity (based on observed credit ratings) is BBB+, and this is operationalized by adopting a weighted average of A (1/3) and B (2/3) 10-year bonds.

[31] Australian Energy Regulator, December 2013, *Better Regulation – Explanatory Statement Rate of Return Guideline,* p. 124.

2 Model selection criteria and principles

The NEL and the NGL require the AER to make its decision to best achieve the objectives in the NEO and NGO. In particular, the energy laws state with respect to the RoRI:[32]

> *"The AER may make an instrument only if it is satisfied the instrument will, or is most likely to, contribute to the achievement of the NEO [NGO] to the greatest degree."*

The wording of the law indicates that uncertainty is an intrinsic part of estimating the RoR. The AER's statutory obligation is, therefore, to exercise its judgement as an expert regulator to contribute to achieving the objectives to the *"greatest degree"*.

Under the NEL and NGL, the AER has significant discretion in selecting a methodology to estimate the RoE. This discretion is particularly important as the expected RoE cannot be observed. As the AER notes in its draft working paper, estimating the RoE is *"complex and contentious"* and *"there is no one right answer"*.[33]

This obligation to achieve the NEO/NGO to the greatest degree requires the AER to consider the following:

- How it will deal with the inherent uncertainty around the estimation of the RoE parameters; and
- Whether its decision is in the long-term interests of consumers by **equally** promoting "efficient investment in" **and** "efficient operation and use of" electricity and gas?

To achieve both statutory obligations, the AER will need to apply an objective set of criteria, to assess the alternative RoE models and input parameters. However, the AER will also need to go beyond its current focus on economic models. It will need to consider the impact of its decisions on the efficient use of electricity or gas by consumers (as highlighted in Section 1).

As a result, the CRG has expanded the AER's criteria by developing a set of consumer principles. The CRG therefore supports the AER's existing principles/criteria on the basis that:

- Applying these regulatory principles represents a well recognised and structured approach to the evaluation and selection of a preferred model that could best satisfy the NEO/NGO; and
- Applying these principles will contribute to consumer confidence and engagement in the process.

Importantly, the AER's principles identify that a RoE model must be suitable for use in Australia's regulatory context where networks provide monopoly services and consumers are generally 'price and service takers' (albeit less now than in the past).

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[32] *National Electricity Law*, Pt3, Div 1B, subdiv 2, 18I(3).

[33] Australian Energy Regulator, August 2020, *Rate of Return, CAPM and alternative return on equity models: Draft working paper*, p.1.

This implies that the AER's approach should be conservative, evidence based and aligned with its principles of reliability, relevance and simplicity. The AER's decisions on the networks' RoE should be contrasted with the RoE required by firms operating in a truly competitive market where equity holders bear the cost of poor investment, pricing and service decisions and where there is significantly greater exposure to market risks.

The CRG also agrees with Partington and Satchell's additional evaluation criteria or *"desirable attributes"*.[34] We consider:

- These additional criteria will provide consumers with more confidence in the AER's decision making; and
- The AER's decisions will extend beyond the purely theoretical assessment of alternative models.

Our evidence to date indicates consumers remain sceptical of the networks' RoR proposals and remain concerned about the influence networks may have on the AER's decisions. Explicitly limiting opportunities for gaming would greatly contribute to consumers' confidence in the AER's RoE decision. Accordingly the CRG has identified five additional consumer orientated principles.

Amongst other benefits, by adopting these principles the AER is more likely to more equally consider the impact of its decisions on consumers and investors. The adoption of consumer principles, therefore, provides a direct link between the AER's decision and the efficient operation and use of electricity or gas as set out in the NEO and NGO. The CRG consumer principles are as follows:

1. A regulatory framework serving the long-term interests of consumers must promote behaviours that engender consumer confidence in the framework.
2. Any change to the regulatory model must be tested against detrimental consumer impacts in relation to absolute prices and price changes.
3. Any change to the regulatory model must be tested against acceptable consumer impacts in relation to service standards.
4. Risks should be borne by the party best placed to manage them.
5. There should be a high bar for change.

This last principle reflects our view that the AER should be conservative and change-for-change-sake is inappropriate in a regulatory context. The onus of proving that a change is in the long-term interests of consumers is on the party that proposes that change and the benefit of that change must be material to offset the risks of change.

However, we emphasise, that the principle of a 'high bar for change' is not a recommendation for 'no change'. We argue strongly that the changes made by AER between the *2013 RoR Guideline* and the *2018 RoRI* were significant but were also clearly justified. That is, there was ample evidence that the networks were making excess returns prior to

[34] Partington & Satchell, June 2020, pp. 9-10.

implementation of the 2018 RoRI.[35] Moreover, as we have highlighted previously, the risk between overinvestment and prices had changed.

The AER also states that its research up to 2018 meant it had *"diminished confidence"* in the DGM, the Black CAPM and the Wright approach which it had previously relied on in selecting a point estimate.[36] Given these reasons, it was appropriate for the AER to change its methodology. However, there are no such compelling reasons to change the 2018 RoRI methodology, although we consider there is scope to amend a number of the parameter values to better achieve the NEO and NGO.

The table below details the full suite of principles/criteria. The CRG believes if the AER considers all these matters in its decision, then it will be able to better satisfy its statutory obligation to contribute to the achievement of the NEO/NGO to the greatest degree.

Table 2-1: Exercising the AER's judgement: Criteria and principles

AER criteria	Partington & Satchell (June 2020)	CRG
Reliability – free from bias	Model is implementable	Promote behaviours that engender consumer confidence in the framework
Relevance to the Australian benchmark	Limited opportunities for gaming	Any change in the regulatory framework must be tested against consumer impacts in relation to absolute prices & price standards
Suitability for use in a regulatory environment	Widely accepted & used	Any changes to the regulatory model must be tested against acceptable consumer impacts in relation to service standards
Simplicity	Stood the test of time	Risks should be borne by the party best placed to manage them
	Least error/unbiased	There should be a high bar for change

The CRG welcomes further discussion on these principles over the coming months

[35] Sapere Research Group, October 2018, *Regulated Australian Electricity Networks - Analysis of rate of return data* published by the Australian Energy Regulator, https://www.aer.gov.au/system/files/Sapere%20report%20on%20AER%20network%20profitabilty%20data%20-%2023%20October%202018.pdf

[36] Australian Energy Regulator, December 2018, *Rate of Return Instrument – Explanatory Statement*, Table 6, pp.82 – 83.

3 Evidence of consumer perspectives

3.1 Context

The CRG planned its consumer engagement in the context of both limited time and resources. The CRG used a two-fold approach to gather evidence of consumer perspectives to inform this submission:

1. We reviewed consumer perspectives from the 2018 RoR Instrument and considered networks broader consumer engagement activities to provide context for the current review. The CRG used this analysis to inform its consumer engagement activities to ensure it was not merely replicating 2018 consumer engagement activities.
2. We interviewed ten consumer representatives to gain direct and current evidence of consumer perspectives and one investor analyst to provide an alternative perspective.

The CRG considers its consumer engagement to be interim, to the extent it is evolving its approach with a view to capturing broader consumer perspectives and potentially even quantifying some insights. To this end, and acknowledging AER also has a *Stakeholder Engagement Framework*,[37] the CRG has prepared its own *Consumer Engagement Framework* to guide and ensure best practice to planning and conducting its engagement activities. The CRG has shared this with the AER and it forms part of our submission (as noted in Appendix A).

The CRG is also further developing several consumer engagement proposals to enhance its understanding of consumer perspectives beyond what we gleaned from our interviews to inform this and previous submissions. The CRG's proposals include consumer research and engagement activities, beyond interviews with advocates and other key informants and will be developed with ECA's assistance. The CRG is also seeking to engage directly with the AER to provide advice to the AER around additional consumer engagement activities it could undertake, beyond any engagement activities the CRG and ECA can resource.

The CRG also acknowledges that networks are engaging with consumers to learn more about their energy needs and expectations. We also note that initiatives, such as NewReg[38], a joint initiative of the AER, Energy Networks Australia and ECA, have helped ensure energy network businesses more appropriately consider consumers' preferences in their regulatory proposals.

3.2 Background investigations into consumer perspectives

The CRG's initial appraisal of AER draft decisions for Victorian electricity distribution businesses for the 2021–26 regulatory period, the South Australian Power Networks (SAPN) 200-25 determination and others, demonstrate a range of consumer engagement methods

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[37] Australian Energy Regulator, *Revised Stakeholder Engagement Framework*, September 2017, https://www.aer.gov.au/publications/corporate-documents/aer-stakeholder-engagement-framework-2017

[38] Australian Energy Regulator, *NewReg*, n.d., https://www.aer.gov.au/networks-pipelines/new-reg

used by networks to engage with consumers.[39] They also illustrate a range of regulatory topics where consumers' preferences can be established. However, consumer preferences in relation to technical aspects of energy regulation, such as RoE, have not historically been the focus of consumer engagement by the networks. Notably, RoR was outside the Customer Forum's scope in the NewReg Early Engagement Process. [40]

The CRG's appraisal of consumer perspectives from the 2018 RoR Instrument, highlighted the challenges engaging with consumers on RoE issues, as the submissions were predominantly received from parties with significant knowledge of the subject matter.[41] Nevertheless key insights from those submissions provided us with guidance as to inform our current engagement. The following table provides an overview of the key consumer perspectives, from a sample of six consumer representative groups, who provided submissions in relation to the 2018 RoR Instrument:

Table 3-1: Summary of consumer perspectives RoR Instrument 2018 (RoE)

Consumer representative group	Key perspectives
Consumer Challenge Panel (CCP)[42]	• The Black CAPM does not produce consistent and replicable outcomes over time. • The CCP is cautious about the inclusion of either international comparators or domestic infrastructure assets. The AER should reconsider its decision and adopt a value for beta below the existing estimate of 0.7 and closer to the empirical evidence on long-term equity beta. • AER should consider profitability measures and RAB multiples in assessing the overall ROE and feed this back in to the decision on beta. • It is reasonable to assume that the long-term expectations for

[39] Australian Energy Regulator, 2020, *Determinations and Access Arrangements*, https://www.aer.gov.au/networks-pipelines/determinations-access-arrangements?f%5B0%5D=field_accc_aer_region%3A15&f%5B1%5D=field_accc_aer_region%3A18

[40] Energy Consumers Australia, Australian Energy Regulator, & Energy Networks Australia, *New Reg: Towards consumer-centric energy network regulation – Directions Paper, March 2018.*https://www.aer.gov.au/system/files/NewReg%20Directions%20Paper%20-%20Towards%20Consumer-Centric%20Energy%20Network%20Regulation%20-%20March%202018.pdf

[41] As listed on the Australian Energy Regulator's website (n.d.), *Rate of Return Instrument 2018 – Submissions – Consultation Paper* (encrypted URL), https://www.aer.gov.au/system/files/Consumer%20Challenge%20Panel%20%28Sub%20Panel%2016%29%20-%20submission%20on%20rate%20of%20return%20issues%20paper%20-%2018%20December%202017.pdf

[42] Consumer Challenge Panel, May 2018, *Submission to the Australian Energy Regulator (AER)*, https://www.aer.gov.au/system/files/Consumer%20Challenge%20Panel%2016%20submission.pdf

Consumer representative group	Key perspectives
	the MRP are anchored to the long-term average. • Weight may be given to the DGM estimates where there is consistency between these estimates and the index of investment climate/uncertainty but less weight – or no weight – should be given to changes that are contrary to investment fundamentals.
Major Energy Users[43]	• Question whether sufficient market data is available to identify risks for network services providers (in providing services) and whether a new approach (e.g. a bottom up build of risk) is needed to assess the operational risks faced by network service providers. • It is a mismatch to apply the market risk premium from data based on the performance of firms that are subject to competition.
Public Interest Advocacy Centre[44]	• Would welcome examination of the risks that efficient regulated network businesses face. This should be supplemented by a bottom-up analysis of the risk allocation between networks and consumers.
Canegrowers[45]	• The standard calculation of equity beta, as if they were operating in the competitive markets, is likely to overstate the risks that natural monopoly network firms face. • The standard calculation of MRP, as if they were operating in the competitive markets, is likely to overstate the risks that natural monopoly network firms face.

[43] Major Energy Users, December 2017, *Australian Energy Regulator, Review of the rate of return guidelines: Issues Paper*, https://www.aer.gov.au/system/files/Major%20Energy%20Users%20Association%20-%20submission%20on%20rate%20of%20return%20issues%20paper%20-%2018%20December%202017.pdf

[44] Public Interest Advocacy Centre, December 2017, *Rate of return guideline review issues paper* https://www.aer.gov.au/system/files/Public%20Interest%20Advocacy%20Centre%20-%20submission%20on%20rate%20of%20return%20issues%20paper%20-%2018%20December%202017.pdf

[45] Canegrowers, December 2017, *Canegrowers submission to AER Review of the Rate of Return Guideline*, https://www.aer.gov.au/system/files/Letter%20to%20AER%20re%20RoR%20Review_19%20Dec%202017.pdf

Consumer representative group	Key perspectives
ECA[46]	• The rate of RoE for regulated network businesses could be addressed by a bottom-up determination of an appropriate risk premium over the risk-free rate. • To determine the extent of the deviation of the current approach from the objectives requires information on either profitability or on market valuation.
CRG[47]	• Little to no weight should be given to the Black CAPM. Less weight should be afforded to the DGM. • The range for equity beta is approximately 0.2-0.5 with the point estimate being in the lower end of the range.

Significantly, the CRG notes from this review that many of these issues, such as the regulatory treatment of risk continue to be issues for consumer representatives today. This finding again raises the question for the CRG about the extent the AER considered and responded to these issues in 2018 and the approach the AER is proposing to use to consider similar consumer perspectives that continue to this day.

3.3 Consumer engagement

3.3.1 Overview

The CRG's consumer engagement for this submission was underpinned by its *Consumer Engagement Framework*.[48] The CRG's broad engagement objectives were grouped into non-technical and technical themes, as follows:

- Non-technically themed objectives:
    - Establish consumer perspectives of trust and confidence in the network claims related to RoR issues;
    - Establish consumer perspectives associated with AER's decision making on RoR, and in particular around the extent consumers believe decisions are fair; and

[46] Energy Consumers Australia, December 2017, *Review of the rate of return guideline: Response to the AER Issues Paper*, https://www.aer.gov.au/system/files/171213%20Response%20to%20AER%20Issues%20Paper%20FINAL.pdf

[47] Rate of Return Consumer Reference Group, December 2017, *Submission to the Australian Energy Regulator Rate of Return Guideline Review* https://www.aer.gov.au/system/files/Consumer%20Reference%20Group%20submission.pdf

[48] Australian Energy Regulator, *Revised Stakeholder Engagement Framework*, September 2017, https://www.aer.gov.au/publications/corporate-documents/aer-stakeholder-engagement-framework-2017

- Understand potential impacts of price changes on residential and business consumers and their likely responses.

- Technically themed objectives:
  - Establish consumer perspectives associated with a possible change to the AER's approach on calculating RoE;
  - Establish consumer perspectives associated with risk sharing; and
  - Assess consumer confidence in investing in regulated energy network companies compared to investing in other sorts of businesses.

The interview questions, developed collaboratively by CRG members, are listed in Appendix B and reflect the above objectives and the extent to which consumers were able to engage on RoR issues in the 2018 review.

Given the technical nature of concepts associated with the working papers and the limited time available to develop and test questions, the CRG initially approached known consumer advocates who were familiar with RoR issues. The CRG added other consumer representatives (and one investor analyst) to this group to broaden consumer perspectives and also further test the extent relatively informed consumer representatives can engage on technical matters. In late September 2020 and early October 2020 CRG members interviewed a total of nine consumer representatives from eight organisations and one investor. A list of participating organisations is also included in Appendix B.[49]

All interviews were conducted online, via Zoom or Microsoft Teams. Either one or two CRG members participated in each interview. Most participants were emailed a list of the interview questions although they were not expected to undertake any preparation. No incentives were offered. Interviews ranged in length from 30 minutes to around an hour, depending largely on the participant's ability to answer the technical questions. CRG members took detailed notes during each interview.

3.3.2 Consumer engagement findings

Based on the interviews with nine consumer representatives (and one investor analyst), the CRG has established the following:

- Consumer representatives generally have low levels of confidence and trust in the networks on RoR issues, although some advocates noted the introduction of the legislated RoR Instrument may have resulted in a more cooperative approach between parties on this issue. For example, consumer representatives describe the networks as "bleating" to the AER to select the best mechanisms that represent their interests and were "not particularly trustworthy" and were only "just more popular than the banks".

[49] As some participants chose to remain anonymous, names of all individuals have been withheld. However all participants, apart from the investor, were amenable to having the organisation published but not necessarily associated with any specific comment. Hence participants' comments have not been attributed to any individual or organisation.

- Consumer advocates highlighted the resource asymmetry between networks and consumers, and they believe this impacts on differences of influence on the AER's decisions by networks and consumers.
- All consumer representatives acknowledge energy prices are important cost inputs for consumers.[50]
    - Several consumer representatives noted while many residential consumers have a limited opportunity to reduce their energy use to compensate for price increases, this does not mean they are insensitive to higher prices. The CRG is aware from other consumer engagement that this exposure to higher prices is a particularly concerning issue for the most vulnerable consumers.
    - The CRG also heard that business consumers had a greater propensity to respond to higher network prices (actual and expected) by seeking better deals or modifying their energy use.
- While some advocates suggested significant numbers of consumers may turn to utilising alternative energy sources if network prices become too high, others emphasised it was a fallacy to suggest consumers (particularly residents) would save money by investing in alternative energy sources.
- The consumer representatives who were confident to comment (seven consumer representatives and one investor analyst) on technical issues believe:
    - The AER should maintain a consistent approach in its RoR Instrument, by the AER and to not accept the use of the DGM as they do not consider additional forecasting adds value.
    - The AER should continue to rely on historical data, rather than forecasts in relation to the MRP.
    - The current equity beta does not reflect the risks faced by energy networks. This views was summed up by one advocate who commented, "electricity networks must be just about the safest businesses in the country" because their revenue is safeguarded at a difficult financial time.
- All participants considered that investment by networks was more likely to be over five to ten years minimum (rather than three years); they also observed that under the regulatory framework investment by networks guaranteed returns over the longer-term, with some participants noting the life of many network assets is closer to 50 years.

[50] The CRG is aware from other consumer engagements that price is a particularly concerning issue for the most vulnerable consumers. For example, the AusNet Services Customer Forum *Final Engagement Report* highlights affordability is a key concern particularly for vulnerable customers. This finding is supported by qualitative research that included marginalised customers as well as interviews with financial counsellors and consumer advocates.

- Most participants believe consumers should get compensated for the risk of having to face additional changes to price levels year-on-year if the risk-free rate was annually updated, and consumers should be compensated for the transfer of any additional risks to them.

These findings supported two overarching themes being considered by the CRG:

- There needs to be a high bar for any change to occur in the RoR methodologies; and
- Consumption efficiency must be further researched by the AER.

These are examined in more detail below.

3.3.3 High bar for change

Evidence from consumers supports a 'high bar for change' principle for the RoR methodologies from a range of perspectives:

1. Consumer representatives raised concerns about network influence over the AER's RoR decisions, at least partially because of the resource asymmetry between consumers and networks. Consumer advocates spoke extensively about these resource asymmetries, and how difficult it was for them to engage in RoR discussions, and their lack of resources compared to the networks.
2. Consumer representatives emphasised consumers' concerns about energy price increases, with some noting a significant spike in complaints from consumers closely correlating with announcements of price rises. Some advocates suggested consumers may adopt alternative energy sources which is likely to lead to higher prices for those unable to take such measures, as well as create consumption inefficiency in the network. Advocates representing mid-tier business consumers emphasised businesses have more options available to reduce their energy bills and will seek to reduce their consumption of network-delivered energy.
3. Technically minded consumer representatives believe that the current equity beta does not reflect the risks faced by energy networks. They are wary of overseas comparators when determining risk.

- Some thought that the equity beta decided in 2018 was too high and it should be lower than it is now, especially given the current risk profile. One participant suggested the AER should compare the equity risk premium to actual risks, while another believed that the equity beta should favour consumers more than it does currently.
- Importantly, consumer representatives were wary of using non-regulated firms as comparators. They were also wary of using overseas firms as comparators and said that the regulator would need to understand the data they are gathering on overseas firms and the similarities and differences compared with Australia. One participant noted difficulties in finding comparable firms to Australian regulated networks. They suggested American data is problematic because of the different contexts such as different regulation, taxation, and market structures. They also suggested even in Australia other businesses do not have guaranteed revenue streams.

- Regardless, another participant believes *"electricity networks must be just about the safest businesses in the country"* because their revenue is safeguarded at a difficult financial time.
- Ultimately as indicated by two participants, and consistent with Partington and Satchell, they would have difficulties having confidence in a changed outcome to the extent that those who want change must prove their case. For example, they need to demonstrate that international data is relevant to Australia, considering the significant differences in investment climates and regulatory arrangements.

4. Consumer advocates are also generally reluctant to rely on forecasts. For example, one advocate was "absolutely against" including the DGM because the SL CAPM is already forward-looking. Another advocated indicated the possible change of approaches does not give them a high level of confidence, although they noted that it depends on the rationale. However another advocate indicated their confidence would increase if the approach had changed in other international jurisdictions, but they remained concerned about moving to an approach involving greater levels of forecasting, which was a significant concern to another advocate.

3.3.4 Insights into consumption efficiency

The concept of "consumption efficiency" is poorly understood. Insights from our consumer engagement highlight a need for clarification consumption efficiency and the CRG needs to understand how the AER applies this statutory obligation in its decision making.

It is clear from numerous sources including the CRG's engagement for this submission that the price of energy is a key issue for many consumers, and according to some consumer advocates significant numbers of consumers are electing to move to less reliance on energy delivered via the networks to help manage their energy bills. One participant even suggested a significant price shock could lead to even more customers opting for to distributed energy resources or consciously making effort to maximise value from their existing distributed energy resources. Another suggested the consumers they represent are suspicious of looming price rises and they are already turning away from the network because prices are too high. This interviewee said it is not just investment in front of the meter which needs to be considered but behind the meter as well. They argued consumers have the capacity to move away from networks and that battery technology would be a "game changer".

While some consumer representatives suggested consumers are price conscious, some and particularly those who are most vulnerable have limited potential to change their behaviour to reduce their consumption or use alternative energy sources.

Notably consumer representatives suggested business consumers, and particularly large energy users, have a greater ability and interest in reducing their energy use in response to increasing prices. One advocate suggested that electricity consumption became more elastic as high prices persist. They thought that businesses would be further driven to solar and other alternatives if prices were to increase. Another suggested that many businesses are flattening their electricity consumption load to reduce their peak use and they expect this behaviour to grow. Alternatively one advocate also suggested, businesses installing rooftop solar panels to help reduce their energy bills.

While the discussions with consumer representatives focused on alternative energy, it is well known many residential and business consumers make long term investments in appliances, and machinery on the basis of their energy efficiency ratings and the potential for ongoing savings.

3.4 Interim conclusions

Some consumer advocates and others have a significant level of knowledge about the AER's RoR Instrument and can engage in depth on this topic. Other consumer representatives, whilst well informed on consumer related aspects of energy distribution, do not feel sufficiently informed or confident to engage on technical aspects of the process. Their added insights highlight the importance of also contextualising consumer engagement on the RoR instrument more broadly, in terms of consumer trust, confidence and fairness in the process.

Based on feedback from those consumer representatives who are technically minded the CRG has formed the following interim conclusions:

- Networks' proposals on the RoR parameters[51] do not necessarily align with consumer perspectives, and this is exacerbated by an asymmetry of resources and information between consumers (and their representatives) and the networks.
- The AER should not change its current approach to estimating the RoE as set out in the 2018 RoR Instrument, although the AER's parameter values may still be too high, particularly the equity beta. The AER should be cautious in using international data or even data from domestic industries to improve its estimate of beta.
- Network investors generally have a long-term perspective when investing in regulated network assets.
- The risk-free rate should not be annually updated, but if it were, consumers should be compensated for any risks transferred from the networks to consumers as a result of such a change.
- The CRG principles are supported by consumer representatives.
- There should by a high bar for change to any of the regulatory RoR parameters:
    - Those seeking such a change should be able to demonstrate how it would promote significantly better long-term outcomes for consumers.
- The AER needs to better understand the consequences of changes in any approach which gives rise to higher network prices, including the possible consumer actions that could undermine the efficient use of the network and investments by end-users of energy.

[51] This lack of confidence relates specifically to the estimation of the rate of return. The CRG is aware of the progress many of the networks are making with engaging their customers on other parts of their regulatory proposals such as capex and opex.

4 Market evidence

The AER is making its decisions on the RoE in the context of increasing claims by the networks that the current returns to their investors are not sufficient and risk future investment in the network. In part this concern arises from the AER's approach to the estimation of inflation.

However, the networks also claim that the AER's estimate of the allowed RoE in the 2018 RoRI is inadequate and risks declining future efficient investment in the network.

As these claims are central to the evaluation of the AER's current approach and the need for changes in this approach, the CRG undertook a preliminary assessment of market evidence. We have been able to review market data including the annual reports, ASX announcements and share market movements of the two ASX listed network companies, namely Spark Infrastructure (Spark) and AusNet Services, as more than 80% of their revenues and profits are derived from returns on their regulated electricity and gas networks.

Notably, there is no evidence from the most recent published reports to the market to suggest that the companies have or expect future negative returns to their shareholders.

Nor is there evidence that they have not been able to raise funds from the market; to the contrary. For example, in an ASX Release dated 20 August 2020, Spark stated that TransGrid had established A$800m of new bank facilities. Spark concluded that:

> "*This solidifies TransGrid's banking relationships and demonstrates the strong appetite to support the business"* [52]

In September 2020, Spark went to the market again with an offer of A$600m 10-year senior secured notes issued at a margin of 177bps. Spark's Managing Director stated in its ASX release:[53]

> *"We are delighted with the establishment of TransGrid's AMTN [Australian medium-term notes] program and a very successful first issuance. The terms achieved reflect the quality of TransGrid assets and strong appetite of investors to support the business."*

Spark Infrastructure holds around 15% ownership share in TransGrid as part of a consortium of four owners.

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[52] Spark Infrastructure, August 2020, ASX Release *"Transgrid establishes A$800 million of new bank facilities"*, https://newswire.iguana2.com/af5f4d73c1a54a33/ski.asx/2A1246382/SKI_TransGrid_establishes_A$800M_of_new_bank_debt_facilities

[53] Spark Infrastructure, September 2020, ASX Release, *"Transgrid successful pricing of inaugural A$600 million Australian Medium-Term Note Issuance",* https://www.marketscreener.com/quote/stock/SPARK-INFRASTRUCTURE-GROU-6498416/news/Spark-Infrastructure-TransGrid-AMTN-Issuance-31302078/

Similarly, AusNet Services announced on 20 September that it had successfully priced an AUD$650m, 60-year AUD hybrid security issue in the form of non-convertible subordinated notes.[54]

Not only are these two businesses able to raise funds in the last few months, they have done so on favourable terms while maintaining their credit ratings. As AusNet Services states in its ASX release: *"Its strong investment grade ratings …allows ready access to domestic and offshore markets*".

Spark announced at its annual presentation to shareholders that it intends to spend A$1b over the next five years on renewables while building more poles and wires. Spark was:

> *"poised to expand and build new networks to support the transition to a lower emissions energy sector".* [55]

Commenting on Spark's results, Macquarie analysts noted:[56]

> *Spark's bottom line has been largely protected from the fallout of the COVID-19 crash by its largely predictable and stable revenue from its regulated assets portfolio.*

Appendix C compares AusNet Services and Spark's share prices with the overall ASX100 market over the last 12 months. This comparison supports the Macquarie statement that the network companies have been largely protected from the COVID-19 disruption.

The recent purchase of a 19.99% stake in TransGrid by a Canadian pension fund at an estimated RAB multiple of around 1.6 further illustrates the ongoing market appetite for investment in regulated networks in Australia and the continued growth opportunities in the regulated (and unregulated) network businesses.[57] Again, this has occurred despite the market disruption of COVID-19.

Given this market evidence, the CRG remains sceptical of the claims by networks and their investors that the AER's 2018 RoRI decision is incorrect and will drive away efficient investment and/or raise the cost of funds. Certainly, the evidence cited above does not support a need for the AER to change its approach to estimating the RoE.

However, we acknowledge we have considered only a snapshot of market trends. Given the AER's necessary reliance on imperfect modelling, it will be prudent to develop a suite of cross-checks to give assurance to both investors and consumers that the AER's decision is well founded in theory and practice. We also recommend the AER establishes a regular

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[54] AusNet Services, September 2020, *ASX Announcement*, "AusNet Services successfully prices AUD650M subordinated hybrid issue", https://www.ausnetservices.com.au/-/media/Files/AusNet/Investor-Centre/ASX-Releases/2020/AusNet-Services-successfully-prices-AUD650M-hybrid-issue.ashx.

[55] Financial Review, August 2020, *"Spark Infrastructure to spend $1n on renewables",* 20 August 2020. https://www.afr.com/companies/energy/spark-infrastructure-to-spend-1b-on-renewables-20200825-p55ozl

[56] Ibid.

[57] Spark Infrastructure, July 2020, *ASX Release*, "*Change of TransGrid Securityholders*", https://www.asx.com.au/asxpdf/20200720/pdf/44knss6pzc4ddm.pdf

monitor of network company reports and announcements, which can be accessed by consumer bodies such as the CRG.

5 Capital asset pricing models and equity models

The CRG supports the continued use of the Sharpe Linter Capital Asset Pricing Model (SL-CAPM) as the fundamental model for assessing the RoE in a regulatory context.

Capital asset pricing models (CAPMs) have been used since the inception of network regulation in Australia in the 1990s. Numerous regulators have applied the model when determining an efficient RoE and the systematic risk for which equity must be compensated in regulatory revenue allowances.

The AER's consultants continue to prefer the SL-CAPM, although regulators have regularly considered other CAPM models and alternative methods of estimating RoE including discounted cash flow (DCF) models such as the DGM.

An important benefit of the SL-CAPM is its relative simplicity and transparency. Moreover, the CRG is not aware of any consistent body of evidence showing the SL-CAPM is prone to systematic bias or greater error variance than any of the alternative models. As the Australian Competition Tribunal (ACT) stated in its review of an appeal by DPNGP Transmission against a decision by the Economic Regulation Authority of Western Australia (ERA).[58]

> *"The SL-CAPM is a well-known, well-understood, robust, accepted and tried-and-true capital asset pricing model. No criticism can be made of the ERA for deploying that model in the present circumstances".*

Other versions of the CAPM, and other RoE models, have become increasingly complex and subject to criticisms such as data mining, dependency on assumptions and unpredictable outcomes without a theoretical explanation or any corresponding benefit in explanatory power. The limitations of these alternative models are clearly set out in the report by Partington and Satchell to the AER, and the CRG largely agrees with their analysis.

The CRG has also considered the alternative models in the context of the regulatory criteria and consumer principles set out in Table 2-1. Again, we consider that the SL-CAPM model of the RoE best satisfies all these principles.

Therefore, the CRG believes there is no compelling reason to move away from the SL-CAPM, or to pursue ad hoc 'tweaks' to the model. Nor has it been demonstrated that combining the SL-CAPM with other equity models, as suggested by Brattle, would achieve a demonstrably better estimate of the RoE consistent with the NEO and NGO.

There is no objective way in which the different model outputs can be 'weighted' to produce a point estimate. Nor is there a coherent framework for interpreting the results of such an approach, particularly given the very different theoretical foundations of each of the models.

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[58] Australian Competition Tribunal, July 2018, *Australian Competition Tribunal, Application by DBNGP.(WA) Transmission Pty Ltd [2018] ACompT 1, Review from: Economic Regulation Authority of Western Australia*, https://www.competitiontribunal.gov.au/decisions/tribunal-decisions

The CRG agrees with Partington and Satchell that simply combining models does not, per se, improve the outcome if the additional models are more problematic than the SL-CAPM.[59] Moreover, such an approach reduces transparency. It adds complexity and opportunities for gaming with no demonstrated benefit other than producing a different and more arbitrary estimate. As Partington and Satchell said: *"Averaging adds to the gameable dimensions of the regulatory process"*.[60] Again, we agree with that conclusion.

The 2018 Independent Panel expressed a similar concern. The Panel noted that if a regulatory process was *"unexplained"* (such as a process for weighting of different models or combining different models to determine a range and a point estimate) there is a risk of it being seen as *"arbitrary and unpredictable."* This in turn has *"the potential to undermine trust in the regulatory process and thereby discourage investment"*.[61] The CRG strongly supports the Panel's observations and recommendations.

However, while we do not accept that the AER will achieve a better estimation of the RoE by combining models or modifying the SL-CAPM, we are open to considering other cross-checks that can independently assess if the AER's model-based decisions align with market or performance indicators

The AER did not examine the use of cross-checks in its draft working paper beyond Brattle's report which compared the AER's RoR approach with the approaches used by international regulators.

The CRG acknowledges Brattle's important observations of international practices and Brattle's attempts to adjust for differences in the regulatory approaches to allow some useful comparisons with the AER's approach. This has contributed to our understanding of the different regulatory approaches. However, at this stage, we do not agree with Brattle's conclusions and we consider it is premature for the AER to rely on this material for the estimation of the RoE for Australian networks.

The CRG welcomes the AER's recent *Network Performance Report*[62], which considers the return on assets of the regulated networks along with other financial indicators such as EBIT per customer. The AER concludes most distribution and transmission network service providers were able to outperform their allowed rates of return before incentive payments and when incentive payments were included, almost all increased their returns.[63]

We also welcome the AER's commitment to providing specific evidence on the realised RoE of the existing networks in its *2021 Network Performance Report*.[64] The CRG also notes that in 2021, the AER plans to introduce the return on regulated equity profitability measure. We

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[59] Partington & Satchell, June 2020, p.10.

[60] Ibid, p.10.

[61] Independent Panel, p. iii.

[62] Australian Energy Regulator, September 2020, *Electricity Network Performance Report 2020*, https://www.aer.gov.au/system/files/AER%20-%20Electricity%20network%20performance%20report%202020%20-%20September%202020.pdf.

[63] Ibid, p.43.

[64] Ibid, p.52.

refer the AER to our presentation of the 16 September 2020 to the AER's Public Forum on the draft RoE working paper. In this presentation, we cited the work of Sapere, which clearly demonstrated the excess economic profits achieved by the majority of the networks between 2013-14 and 2016-17.[65] We also note the reported excess economic profits was assessed by applying the AER's stated approach of EBIT/RAB. The AER also acknowledged this in its *2018 Final RoRI Explanatory Statement*. However, the AER did not adequately discuss the implications of these findings for its 2018 decision.[66]

Overall, however, if the AER uses a cross-check to validate its RoE estimate, it must also provide a transparent explanation as to how this cross-check is relevant to the ex-ante estimation of the RoE for a regulated network entity. Any interpretation of these cross-checks must also consider that an ex-post observation of the RoE is not a direct measure of the ex-ante estimation of investor expectations.

Finally, the CRG rejects the application of the Wright approach, or similar models based on the assumption of a stable RoE over time based on a predictable inverse relationship between the MRP and the risk-free rate.

Partington and Satchell have observed there is no such predictable relationship over time between the risk-free rate and the ex-ante RoE in the Australian market. Moreover, we find the consequence of the Wright theory untenable as it leads to highly improbable results at different times. Partington and Satchell cite the time Australian Government bonds rose to around 15%. Using the Wright approach would result in a substantial, and improbable - negative estimate of the MRP.[67] Alternatively, when the Government bond rate is very low, as it is has been for some years, the Wright approach leads to improbable estimates of the 10-year MRP.

Regardless, at various time periods, there may be evidence of a moderate inverse relationship between the risk-free rate and the MRP such that the ex-ante RoE is more stable than the risk-free rate (i.e. an inverse relationship <-1 and >0. However, at other times, the observed relationship is reversed. Therefore, at this stage, there does not appear to be an underlying theoretical framework or consistent empirical evidence that can give consumers confidence this relationship can be meaningfully introduced into the estimation of the RoE. As such, it would fail the principles we have outlined in Table 2-1.

Therefore, the CRG concludes that the AER should rely on the SL-CAPM to estimate the efficient benchmark expected RoE for a regulated network business. Notwithstanding that there will inevitably be differences between the SL-CAPM and the realised RoE, including arbitrary assumptions around inverse relationships between the risk-free rate and the MRP is only likely to introduce bias to the AER's estimate.

The submission will now consider in more detail the two more controversial components of the SL-CAPM; the estimation of the MRP and equity beta parameters. We will have a particular focus on the report by Brattle given it is this report that suggests some significant changes to the AER's approach in the 2018 RoRI.

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[65] Sapere Research Group, October 2018.

[66] Australian Energy Regulator, *Explanatory Statement*, December 2018, p.39.

[67] Partington & Satchell, p.23.

As discussed in previous sections of this submission, the CRG believes there must be a 'high bar for change' and that the onus of proof must establish a material deficiency in the AER's estimation of the RoE. Overall, we do not believe Brattle has established this case for change. We are reminded of the AEMC's statement in 2012 when considering a change to the estimation of the return on debt and find this statement equally as applicable to the assessment of Brattle's proposals. The AEMC stated:[68]

> *"The purpose … is for the regulator to have regard to the impacts of changes in the methodology for estimating the return on debt from one regulatory period to another. Consideration should be given to the potential for consumers and service providers to face significant and unexpected change in costs or prices that may have negative effects on confidence in the predictability of the regulatory arrangements."*

[68] AEMC, November 2012, *Final determination made on network regulation rule changes*, https://www.aemc.gov.au/news-centre/media-releases/final-determination-made-on-network-regulation-rul,p.85.

6 Estimating the CAPM parameters

In its draft working paper, the AER considered a number of alternative methodologies to estimate the MRP and the equity beta taking into account the advice from its two consultants.

The CRG does not support any of the proposed changes to the AER's current methodology to estimate the MRP or the equity beta although we acknowledge the problems of using empirical market data to estimate the equity beta of an efficient benchmark regulated network.

The following sections set out the reasons for our advice on the estimation of the MRP and the equity beta.

6.1 Market Risk Premium (MRP)

The CRG has drawn the following conclusions with respect to estimating the MRP:

- The AER's approach of using only the historical analysis of excess market returns (with some cross-checks) is preferable given the difficulties with the implementation of the DGM, or similar models that rely on subjective forecasts of future returns.
- The use of historical excess returns is consistent with a forward-looking assessment of the MRP, particularly when forecasting over the longer-term investment horizon.
- As observed by the previous CRG and the CCP, the AER's 2018 estimate of 6.1% is on the high side. An important issue here is that the AER did not properly consider the geometric averages of annual excess returns.

Our reasons are discussed below.

6.1.1 Historical analysis and the DGM

In its final 2018 RoR decision, the AER adopted a MRP of 6.1%.[69] In coming to this decision, the AER relied on an analysis of historical excess returns (HER) over five different time periods using the arithmetic average. In 2018, the AER also decided that forward looking models such as the DGM were sufficiently problematic in the regulatory context that it would not use DGM as part of its decision on the MRP.

This was an important change as the AER had used the DGM results in 2013 to guide its selection of a point estimate within the range of values observed from the HER data. Consumer representative groups supported the AER's 2018 emphasis on the HER approach although they regarded the AER's final estimate of 6.1% as 'conservative' given the results of the AER's HER historical analysis. However, the networks strongly opposed the AER's 2018 approach.

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[69] Australian Energy Regulator, December 2018, *Rate of return instrument*, https://www.aer.gov.au/system/files/2018%20Rate%20of%20Return%20Instrument%20%28Version%201.02%29_1.pdf , pp. 240-241.

In their June 2020 report to the AER, Partington and Satchell extensively reviewed the MRP and concluded that there was no basis to change the AER's approach.[70]

However, the Brattle report suggested the AER's approach to the MRP was 'backward-looking' and the AER would better satisfy the NEO and NGO if it also included a more forward-looking model that better reflects current market conditions. Brattle concludes:[71]

> *"We think that these observations indicate some areas in which the AER's approach, in our view, is not as effective as the approach of other regulators. These areas include … incorporating forward-looking evidence into the cost of equity"*

Brattle suggested that a discounted cash flow (DCF) model such as the DGM would provide this forward-looking perspective, noting that other regulators used this type of model.

However, Brattle did not address the many challenges that were identified by Partington and Satchell, namely how the models can be meaningfully combined to estimate the MRP, what form of the DGM model would be adopted, how would the inputs to the DGM be identified and estimated and by whom

These crucial limitations of the DGM (and other DCF techniques) are not addressed in Brattle's recommendations. These limitations, further discussed below, mean the DGM does not satisfy the principles in Table 2-1.

The CRG has considered the potential impact on consumers of using a forward-looking model such as the DGM for estimating the MRP consumers for regulatory processes.

We found forward-looking MRP estimates, such as the DGM, vary significantly over time depending on the methodology and underlying assumptions. Further, there are no clear criteria for selecting any particular DGM methodology, or for making one set of forecast assumptions over another set of assumptions.

Evidence from our consumer engagement also indicated consumers have little appetite for higher prices that result from inclusion of a forward-looking MRP and advocates to not believe consumers are well placed to carry any additional price volatility. The table below shows the potential volatility of MRP estimates derived using the DGM.

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[70] Partington & Satchell, June 2020.

[71] The Brattle Group, June 2020, p. 58.

Table 6-1 Estimating the expected MRP using DGM models

DGM MRP methodology	Damodaran	BoE (2002)	BoE (2010)
August 2020[72]	8.46%	8.94%	8.83%
April 2017[73]	8.83%	11.56%	9.12%
July 2002 to June 2008[74]	3.6%	4.2%	3.6%

The expected MRP derived from the DGM models ranged from 3.6% to 11.56% over the last 18 years. There was no consistent set of empirical events that could explain this variation. As highlighted previously, decisions that have significant impacts on consumers but which are based on models that deliver arbitrary and unpredictable outcomes undermine the confidence of consumers and investors.

The CRG has examined previous decisions in economic regulation in Australia and could not find any evidence prior to 2008 that network businesses, or any other stakeholders, requested economic regulators to apply models such as the DGM to estimate the expected MRP. The period prior to 2008 was a period when the DGM results were significantly below the MRP results based on the historical time-series.

Alternatively, after 2008, there were increasing requests from network businesses that economic regulators consider forward-looking MRP estimates based on the DGM. This was at a time when the expected MRP estimated using the DGM, started to rise significantly above the expected MRP estimated using historical time-series. Many other stakeholders saw this change in the networks' arguments as a change of convenience and as evidence that the networks' RoR proposals could not be taken seriously.

6.1.2 The value of historical data for forward-looking estimates

The CRG rejects the claim that the HER approach cannot be used to determine a forward-looking assessment of the MRP. The claim fails on a number of criteria:

- Using the analysis of historical data is a very common and widely accepted statistical method to forecast future developments.
- The AER's analysis of the MRP over multiple time periods confirms that the MRP is stable over time.

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[72] IPART, August 2020, *Fact sheet - WACC Biannual update*, https://www.ipart.nsw.gov.au/Home/Industries/Special-Reviews/Regulatory-policy/Market-Update/Fact-sheet-WACC-Biannual-update-August-2020.

[73] IPART, May 2017, *MRP estimates at end of April 2017*, https://www.ipart.nsw.gov.au/Home/Industries/Special-Reviews/Regulatory-policy/WACC/Fact-sheet-MRP-estimates-at-end-of-April-2017-25-May-2017.

[74] IPART, September 2013, *Draft Report – WACC methodology, IPART*, , https://www.ipart.nsw.gov.au/Home/Industries/Special-Reviews/Reviews/WACC/Review-of-method-for-determining-the-WACC/25-Sep-2013-Draft-Report/Draft-Report-WACC-methodology-September-2013, p. 26.

- There is no evidence to support the view that there has been a structural change of enduring significance to long-term market expectations.
- In particular, the HER data includes periods of significant economic, social and technological disruption.
- Because the past includes these 'black swan' events, the average of the past is a reasonable representation of the future 10-year reference period for the MRP estimation.
- The regulatory framework is built around the assumption of estimating returns over the life of the assets. To allow 'current events' to dominate the estimation of future returns over the next 10-year reference period is to fall into the trap of the 'recency bias', giving greater importance to the most recent events.

6.1.3 Why current MRP estimate may be too high

The debate about the use of arithmetic or geometric averages to estimate the MRP was considered but left unresolved as far back as the Australian Competition Tribunal's (ACT) decision on an appeal by Envestra in 2012. Envestra appealed the AER's MRP decision of a 6%, disputing the AER's use of both geometric and arithmetic averages in the modelling of historical excess returns.

In this instance the ACT concluded that once it is accepted the relevant benchmark is ten-year excess returns:[75]

> *"It may be accepted that an arithmetic mean of historic annual returns is an unbiased estimate of expected future one-year returns**. It is not, however, an unbiased estimate of expected future returns over longer time horizons**. A geometric mean of historical annual returns does not provide an unbiased estimate of expected returns over longer horizons only." [emphasis added]*

In its 2018 *Explanatory Statement*, the AER's commentary updates the ACT's analysis. The AER states:[76]

> *"The geometric average is downwardly biased, but is most useful when **considering returns over a longer period or highlighting periods of differing volatility**. Academic results have shown that as the investment horizon increases, results from the geometric average become closer to the unbiased estimator than the arithmetic average. Recent advice also highlights that with shorter sample periods we should be placing increasing weight on the geometric results in order to reach an unbiased estimate." [emphasis added]*

However, the AER's final estimate of a MRP in 2018 was 6.1% (after adjusting for an assumed imputation value (theta) of 0.65). This decision by the AER is closer to the historical average MRP and therefore appears to be inconsistent with the AER's observations cited above.

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[75] Australian Competition Tribunal, *Application by Envestra ltd (No 2)[2012]* ACompT4, @ 158.

[76] Australian Energy Regulator, 2018 Explanatory Statement, December 2018, p.90.

The table below from the AER's 2018 RoRI Explanatory Statement, and using its preferred historical period of 1988-2017, indicates a MRP range of 4.6% for geometric average and 6.1% for arithmetic average with an average of the two being 5.35%.

Table 6-2: Historical excess returns (2018 analysis) per cent[77]

Sampling period	Arithmetic average	Arithmetic return Standard Deviation	Arithmetic average (2013 guidelines)	Geometric average	Geometric average (2013 guidelines)
1883–2017	6.3	0.163	6.3	5.0	4.8
1937–2017	6.0	0.191	5.9	4.2	3.9
1958–2017	6.6	0.214	6.4	4.3	3.8
1980–2017	6.5	0.210	6.3	4.3	3.8
1988–2017	6.1	0.169	5.7	4.6	3.6

Source: Handley, An estimate of the historical equity risk premium for the period 1883 to 2011, April 2012, p. 6. AER update for 2012–2017 market data. The 2013 guideline values are taken from data up to December 2012.
Notes: Calculated using an assumed imputation value (or theta value) of 0.65.

6.1.4 Conclusions on the estimation of the MRP

The use of an historical average of excess returns to estimate the expected MRP is a well-established methodology in finance theory.[78] All economic regulators in Australia use the historical average of excess returns to estimate the expected MRP, although some also combine it with a 'forward-looking' model such as the DGM.

As indicated above, in its historical analysis the AER places most regard for the historical period of 1988-2017. This period provides sufficient data to cover a number of major economic shocks but avoids inclusion of data from longer periods where technological and social changes as well as economic fundamentals may make the estimate less relevant.[79]

> *"We have calculated HER over multiple time periods including both 100 year and 30 year periods. However, we consider data from the most recent period is the most relevant to our estimation of a forward looking MRP as it is most representative of recent market trends including the introduction of imputation credits and higher levels of integration with international markets."*

The CRG supports the conclusions of the AER. Nevertheless, it is notable that the HER estimates are remarkably stable over even longer time periods.

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[77] Australian Energy Regulator, 2018 *Rate of Return Instrument, Explanatory Statement*, p 91.

[78] Dimson, Marsh and Staunton, 2012, *Credit Suisse Global Investment Returns Sourcebook 2012*, , https://research-doc.credit-suisse.com/docView?language=ENG&source=emfromsendlink&format=PDF&document_id=944857261&serialid=GWmBxAcmFYlxGe2svpGTrX4RH8hsfKCtYqlpfG7pFcs%3D

[79] Australian Energy Regulator, 2018 *RoRI Explanatory Statement*, pp. 90-91.

Importantly, the 1988-2017 period covered the following periods of market volatility which supports the view that the HER methodology provides a robust approach that 'allows' for the intrusion of disruptive events. For instance, this period includes:

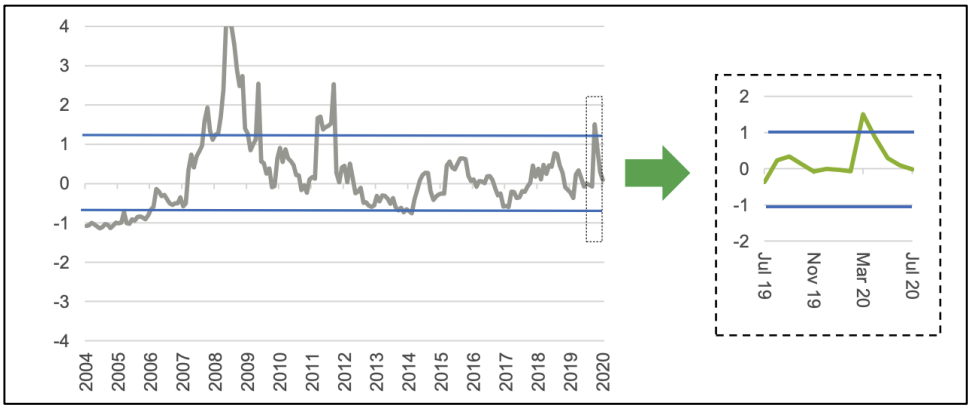
- 1987 Black Monday crash and its aftermath
- 1997 Asian financial crisis
- 2001 Dot com crash
- 2008 Global Financial Crisis.

While the current impact of COVID-19 has similarly increased market volatility, this appears to have returned to normal levels quite quickly. For example, the NSW Independent Pricing and Regulatory Tribunal uses an uncertainty index in its WACC determinations. [80]

The uncertainty index shows that there was a definitive increase in economic uncertainty during March and April 2020 as COVID-19 expanded throughout the world and Australia, albeit to a lesser degree than during the 2008 financial crisis.

By July 2020, the index tracked close to zero (standard deviations) indicating that economic uncertainty is perceived as no more and no less than the long-term average. Moreover, this return to average shows the risk of a regulator responding to 'black swan' events, particularly when the regulator is determining a long-term 10-year MRP.

Figure 6-1: Uncertainty Index (standard deviation from average)



Source: IPART, *WACC Biannual market update*, August 2020.

This further supports the view that the AER's forward-looking assessment of the MRP must be appropriate for a 10-year investment horizon rather than overly responsive to current events.

In summary, the CRG considers that the HER approach provides the least biased and most transparent estimate of a forward-looking MRP. We do not accept the view that this estimate of future returns would be improved by including the DGM approach (or similar)

[80] IPART's uncertainty index measures economic uncertainty in Australia and is calculated from ASX200 and ASX 200 total return volatility indices, dispersion in analysts' forecasts, credit spreads and Bills-Overnight Index Swap (OIS) rates.

given the limitations of the DGM outlined above and the overall 10-year framework of the AER's RoR.

In addition, as illustrated in Table 6-2 above, the HER approach demonstrates a consistent estimate over time, and therefore provides a predictable and stable basis for the calculation of the RoE. In contrast, the DGM will add significant volatility to the AER's estimates, which is not in the interests of either consumers or investors.

Brattle appears to recognise these features of the two models, stating:[81]

> *"The AER, like most of the reviewed regulators, relies on a MRP that is essentially backwards-looking. The advantage of this approach is that it makes the parameter stable and predictable, but it may fail to capture recent developments in the market. For example, recent international evidence indicates the MRP one year out (including that in Australia) increased by a non-trivial amount in March 2020 as Covid-19 became a concern".*

Brattle concludes that because the AER only used the HER analysis to set the MRP in 2018, the AER's approach was "less effective" than if it had also included a more forward-looking model.[82]

However, the CRG considers Brattle's statement actually supports the AER's approach.

For example, the CRG considers it is a positive feature of the HER that it produces "stable and predictable" parameter values. In contrast, we consider models, such as the DGM, produce unpredictable outcomes because (inter alia) of the excessive emphasis on near term events. This emphasis is not consistent with the with the AER's 10-year CAPM model and not in the long-term interests of consumers.

Given this, the CRG believes that the HER approach best satisfies the CRG's principles in Table 2-1. Although some regulators combine the HER results with the DGM, our current view is that this will not contribute, or sufficiently contribute, to a better estimate of the RoE as it will add complexity and uncertainty while increasing the opportunities for gaming the regulator and consumers.

In addition, there does not appear to be sufficient justification from a theoretical or empirical perspective for such a change. We consider Brattle's assertion that: *"the AER's approach, in our view, is not as effective as the approach of other regulators"* is unfounded in the context of the AER's overall regulatory framework.

The CRG would also argue that, on the basis of the currently available data, the best estimate of the MRP should be no higher than the average of the arithmetic and geometric HER analyses, giving an MRP of 5.4%. We urge the AER to reconsider its current approach to geometric and arithmetic averages, particularly given it is calculating the MRP using 40 plus years of market return data and is estimating a 10-year average MRP.

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[81] The Brattle Group, June 2020, p. 58.

[82] Ibid.

6.2 Estimating equity beta

The AER also questioned whether the approach to estimating beta should be reconsidered. Brattle proposes the use of shorter estimation periods for the equity beta to achieve a more forward-looking estimate of the RoE based on more current market conditions.

The AER and other stakeholders recognise the challenge of estimating equity beta using empirical analysis. Currently there are only two relevant ASX listed entities, being Spark Infrastructure (Spark) and AusNet Services. However, it is questionable how representative these two firms are of the systematic risks of all the networks including government owned and those not listed on the ASX.

As discussed below, this leads the CRG to focus on the conceptual analysis of systematic risk as well as the empirical analysis of historical returns that the AER has relied on when estimating beta for the 2018 RORI.

However, it is important to recognise that the empirical analyses conducted in 2009, 2013/14 and 2018 all point to a very similar estimation for equity beta indicating that the industry beta is more stable over time and across economic cycles than claimed by some analysts. This is perhaps not surprising given that aspects of the regulatory framework relevant to systematic risk have not changed significantly over this period.

On the basis of the conceptual and empirical analysis, the CRG has concluded that the AER should at, the very least, retain its current estimation of equity beta of 0.6 and there are good conceptual arguments for a lower beta.

Our more specific conclusions areas as follows:

- The efficacy of beta, as estimated by the AER, may be compromised by the narrowness of available benchmark entities and the material differences between the two available benchmark entities.
- There are noticeable differences in the effect of economic 'black swan' events such as COVID-19 on the energy networks compared to other infrastructure assets and to the economy as a whole.
- These differences arise directly from the regulatory framework and are revealed by reference to indicators such as revenue stability, cash flow, share prices and management/investor statements.
- This resilience is evidenced by the financial indicators and ready access to debt and equity, and points to the conclusion that the equity beta for an efficient benchmark network company geared at 60% should be one of the lowest.
- The CRG does not concur with suggestions by Brattle that more of the short-term volatility in equity markets should be reflected in beta, be it through a shortening of the estimation term of the beta or by changing the frequency of data collection (e.g. daily data).
- The use of data from other Australian regulated companies, or international data to estimate the equity beta for a regulated network in Australia is problematic as the economic, structural and regulatory environments are different and cannot readily be 'adjusted for'.

These conclusions are explained further in the following discussion.

6.2.1 The risks measured by the equity beta

The CAPM estimates expected returns on an asset (or class of assets) using three parameters – the risk-free rate, a market risk premium and a measure of that asset's systemic risk (also known as non-diversifiable risk). This last measure is known as an equity beta (β). Beta represents a measure of an asset's volatility of returns relative to the volatility of returns experienced by the overall market. Alternatively stated, beta reflects an asset's sensitivity to the forces that shift returns across the overall market.

More formally, beta represents the ratio of the covariance between the return on an asset (or group of assets) and the returns produced by the market, and the variance of returns in the overall market.

$$\beta_i = \frac{\text{Cov}\,(R_i, R_m)}{\text{Var}\,(R_m)}$$

where: R_m represents the expected return of the market

R_i represents the expected return on an asset, or group of assets

The AER's regulatory framework uses this formula to derive the compensable systemic risk allowed to regulated entities in their revenue allowances. The regulator holds substantial discretion over its choice of benchmark assets – that is, the assets, or class of assets, used to measure the variable R_i when calculating beta.

Only two energy network service providers publicly listed in Australia. These are the Spark Infrastructure Group and AusNet Services. While the APA Group is also listed on the ASX, less than 15% of its revenues come from its regulated gas networks and these are regulated by the Economic Regulatory Authority in Western Australia (ERA) under a somewhat different regulatory framework. For this reason, we do not regard APA as a relevant entity.

That is, it is important that the companies included in the analysis of beta earn a significant majority of their revenues from their regulated businesses. This is because of the interaction between the regulatory framework and the systematic risks of the business.

A brief overview of the two companies follows:

- The Spark Infrastructure Group has an ownership stake and operates electricity transmission and distribution infrastructure, which is regulated by the AER. It also owns a solar farm which is not regulated by the AER. According to the ASX website, its dividends have hovered rose from 13 cents to 16 cents per share over three years before falling back to 15 cents this year.
- AusNet Services owns and operates regulated electricity and gas distribution networks and a transmission network in Victoria and a commercial business ('Mondo') that provides services to business, government, communities and households. Mondo accounts for less than 8% of total revenue.[83] According to AusNet Services' 2020 annual

[83] AusNet Services, 2020, *Annual Report 2020*, https://www.ausnetservices.com.au/-/media/Files/AusNet/Investor-Centre/AR-for-web-2020.ashx?la=en, pp.32-33

report, dividends are up by 5% and net profit after tax increase by 15% compared to the previous year.[84]

Having only two benchmark entities to determine the value of beta potentially leaves the AER's estimates of beta exposed to being overly influenced by any idiosyncratic circumstances affecting the returns of those two firms. For example, actual debt may vary from the benchmark 60%. Further, the markets view of the risks associated with the non-regulated businesses may affect the equity beta, although this is a relatively small component of the earnings of these two companies.

Moreover, It is not self-evident whether other networks (unlisted but still regulated by the AER) can be expected to share the particular features of Spark and AusNet Services. In other words, it is overly simplistic to assume the returns earned by listed network companies are representative of the returns earned by unlisted networks or networks operating in Australia but listed on overseas exchanges.

Even between the two listed network businesses, there are significant differences. Spark has minority holdings in a number of companies and these are confined to companies operating in the electricity sector. AusNet has a more complex ownership structure and owns and operates both gas and electricity networks.

The CRG is concerned that the efficacy of beta, as estimated by the AER, may be compromised by the narrowness of available benchmark entities and the material differences between the two available benchmark entities. In previous years, it was feasible to estimate an Australian beta using a set of 9 network companies. With the passage of time this has reduced to three listed companies and one of these (APA) derives only about 10-15% of its revenue from regulated gas network assets, as noted above.

A common practice was to increase the sample number for analysis by including other capital-intensive regulated businesses such as water, roads and airports. The first recession since the advent of economic regulation in Australia has brought the shortcomings of directly using data from these other industries into clearer relief.

In a recent article in the Weekend Australian (5 September 2020, p.34), financial commentator Alan Kohler reflected on the impact of the pandemic on the owners of infrastructure. He wrote:

> *"One of the most difficult problems is likely to be infrastructure overcapacity … Much of the national infrastructure—railways, airports, stadiums, theatres, cinemas, art galleries, shopping centres, restaurants, even entire CBDs – were built for large numbers of people to gather close together and breathe on each other."*

He also suggested:

> *"That means the owners and operators of infrastructure will have to adjust their business models and their balance sheets, and in particular they won't be able to carry as much debt as before. For many that will be a painful, possibly life-threatening, adjustment … This could end up being the economy's key vulnerability next year, along with the government's reluctance to compensate those whom it has deprived."*

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[84] Ibid, p.7.

There are notable differences between the effect of the pandemic and recession on the infrastructure identified by Kohler, and its effect on energy networks. Those differences include:

1. As an essential service, energy consumption is less cyclical than the services provided by the types of infrastructure identified by Kohler. Data provided by the Victorian electricity networks[85] indicates the overall impact on consumption has been comparatively minor – although there has been a significant shift in demand between consumer groups[86]
2. Regulated entities are shielded from cyclical movements in demand when they are regulated under a revenue cap. Electricity transmission service providers are required to use a revenue cap, while electricity distribution and gas service providers are able to propose the form of control they employ. Currently, electricity distribution networks are regulated under a revenue cap, while gas networks are regulated under a mix of revenue and weighted average price cap regimes.
3. Under current regulatory arrangements, networks do not face the risk of non-payment by customers, unless they are direct customers of the network. This risk is borne by retailers. Irrespective of whether a customer is in arrears or even defaults in their payments to a retailer, the network provider is still paid by the retailer for the services provided. Retailer default risks are also protected through mechanisms such as retailer bank guarantees, pre-payment for services, and the retailer-of-last-resort mechanisms.
4. The value of networks' RAB is safeguarded against the effects of inflation, thereby guaranteeing its real value against which a RoR can be earned.
5. The shift to a trailing average approach to the cost of debt, is significantly reducing networks' exposure to unexpected (upward) shifts in borrowing costs during a regulatory period.

Australia's first recession in almost 30 years, highlights the **regulatory privilege** under which energy networks operate in Australia. All things being equal, these factors suggest networks' cashflows are significantly **less** exposed to demand-side volatility than other infrastructure operators. Unless proven otherwise, networks can be expected to be shielded from the systemic vulnerability foreshadowed in Kohler's article.

Rob Koh, an energy market analyst with Morgan Stanley, conveyed similar views at the AER's Public Forum (16 September 2020) organised by the AER. Koh stated, *"Networks have the lowest revenue variability," "Regulated utilities have the most predictable revenue"* and *"Revenue expectations [for networks] are very transparent and predictable and that should be taken into account in determining the cost of capital."*

In the lead up to the AER's *2013 RoR Guideline*, it commissioned McKenzie and Partington[87] and Frontier Economics[88] to outline the key features of systematic risk and what this means

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[85] Regularly published on LinkedIn by Gavin Dufty, Senior executive St Vincent de Paul

[86] Citipower is the notable exception where large declines in energy use by businesses located in the city area have not been offset by the increase in residential consumption.

[87] McKenzie and Partington, July 2013, *Report to the AER: Risk, Asset Pricing Models and WACC*, https://www.aer.gov.au/system/files/McKenzie%20and%20Partington%20-

for selecting comparator industries. In their report, McKenzie and Partington examined the risks of equity, including business risk, financial risk, risk of agency costs, liquidity risk and risk of debt. Across all these areas they concluded that the risks for a regulated entity were low or offset by other aspects of the regulatory regime.[89]

Frontier Economics considered that the water industry was closest to a regulated energy network in terms of systematic risk, they but differed in important factors such as volume risk. More importantly, the regulated water businesses in Australia are generally not listed companies. For this reason, water regulators often based their WACC estimate on the energy regulator's estimate.[90] This also demonstrates another limitation of cross-referencing allowed betas for different Australian regulated infrastructure companies, and that is the circularity of regulatory decision-making.

While this conceptual analysis has not been rigorously reviewed by the AER since 2013, the AER did update its empirical study of the equity beta and found the results very similar to the previous studies by Professor O Henry. Across the 2009, 2013 and 2018 studies the empirical beta has sat within a range of 0.3 to 0.8. The AER's most updated study in 2018 showed a range of 0.42 to 0.88 with a median value between 0.5 and 0.6. The study also showed a long-run estimate for the two networks of Spark and AusNet Services of 0.42, although the short-run estimate was higher.

The CRG contends that regulated networks (whether listed or not) share little of the systemic risks faced by companies listed on the Australian Stock Exchange. This suggests a low covariance between the returns from regulated networks and the returns produced by the overall market.

6.2.2 Short and long-run estimates of beta

Brattle has suggested the equity beta should be calculated using a shorter historical term to ensure it better reflects current market conditions. However, in order to obtain sufficient data points for a statistically meaningful analysis, Brattle also suggests that the AER sample daily and weekly market data for the period where others have found it important to use monthly or quarterly data which would require longer observation periods.

The issue of assessing more current market conditions as part of the AER's rate of return process has been addressed previously in this submission and applies equally to this proposal by Brattle. There is also considerable evidence cited by Partington and Satchell,

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%20Risk%2C%20asset%20pricing%20models%20and%20the%20WACC%20-%20June%202013%20-%20Draft%20rate%20of%20return%20guideline.pdf.

88 Frontier Economics, July 2013, *Assessing risk when determining the appropriate rate of return for regulated energy networks in Australia, A Report prepared for the AER*, https://www.aer.gov.au/system/files/Frontier%20Economics%20-%20Assessing%20risk%20when%20determining%20the%20appropriate%20rate%20of%20return%20-%20July%202013%20-%20Draft%20rate%20of%20return%20guideline.pdf

89 McKenzie and Partington, July 2013, pp. 11-16.

90 Frontier Economics, July 2013, p. 4.

that: "to measure the fundamental risk exposures of a firm, use low frequency estimates of data".[91]

The CRG clearly has concerns about the limited data available to the AER to conduct an empirical analysis of beta. However, we do not believe the solution is found in using short-run estimates of beta and the extension of this to using high frequency data, particularly given the AER's focus on long-term returns on long-life assets.

6.2.3 International benchmarks

When considering which Australian firms could be included in the empirical equity beta data set, the CRG highlighted the differences between network firms and between these firms and other Australian regulated infrastructure businesses. The problem becomes even larger when contemplating using international firms.

The CRG considers that while it may be interesting to examine international benchmarks when reflecting on the determination of beta, it is not clear they can be relied upon to inform regulatory decisions in Australia. Our concerns include the following:

- Using benchmark firms (ni) in international markets would need to consider not only how the returns on those entities (R_{ni}) covaried with returns in their home markets, $\text{Cov}\ (R_{ni}, R_{nm})$, but also how those overseas markets covaried with the Australian market, $\text{Cov}\ (R_m, R_{nm})$.[92] The CRG has not investigated whether there is a theoretical foundation for such a calculation.
- Returns by regulated entities (R_{ni}) in each international market (n) and how those returns covary with overall returns in each of those markets, $\text{Cov}\ (R_{ni}, R_{nm})$, will be, at least partly, dependent on the regulatory frameworks applied in each of those jurisdictions. As observed in the AER's discussion papers, each jurisdiction applies its own somewhat modified version of the CAPM.
- There is an endogeneity between the rate of return earned by each benchmark firm, and the beta calculated for that firm. That is, R_{ni} is both an input into the calculation of β_{ni} but also partially the product of β_{ni}. This endogeneity is a function of the regulatory arrangements in each jurisdiction. It would be necessary to remove the effect of endogeneity in each jurisdiction to ensure results are comparable with Australian benchmark firms. This is likely to be a fraught endeavour.

We acknowledge that Brattle has undertaken an interesting international comparison of return on equity approaches. However, the CRG concludes from our examination of all the data, that it is extremely difficult to define how this information could be used in determining the RoRI, including the parameter estimates of MRP and beta.

When we apply the AER's criteria and the CRG's customer principles we come to the conclusion that international data does not provide the AER with a resolution of the issue of limited data for estimating equity beta.

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[91] Partington & Satchell, June 2020, p.22.

[92] Where ni represents benchmark firm i in market n, and nm represents the overall market in country n.

As we have suggested in our recommendations, this is an area where the AER may need to go back to the basic questions of risk last considered in 2013, namely what is the risk we are trying to measure and how can that best be assessed? The CRG is keen to be a part of that discussion.

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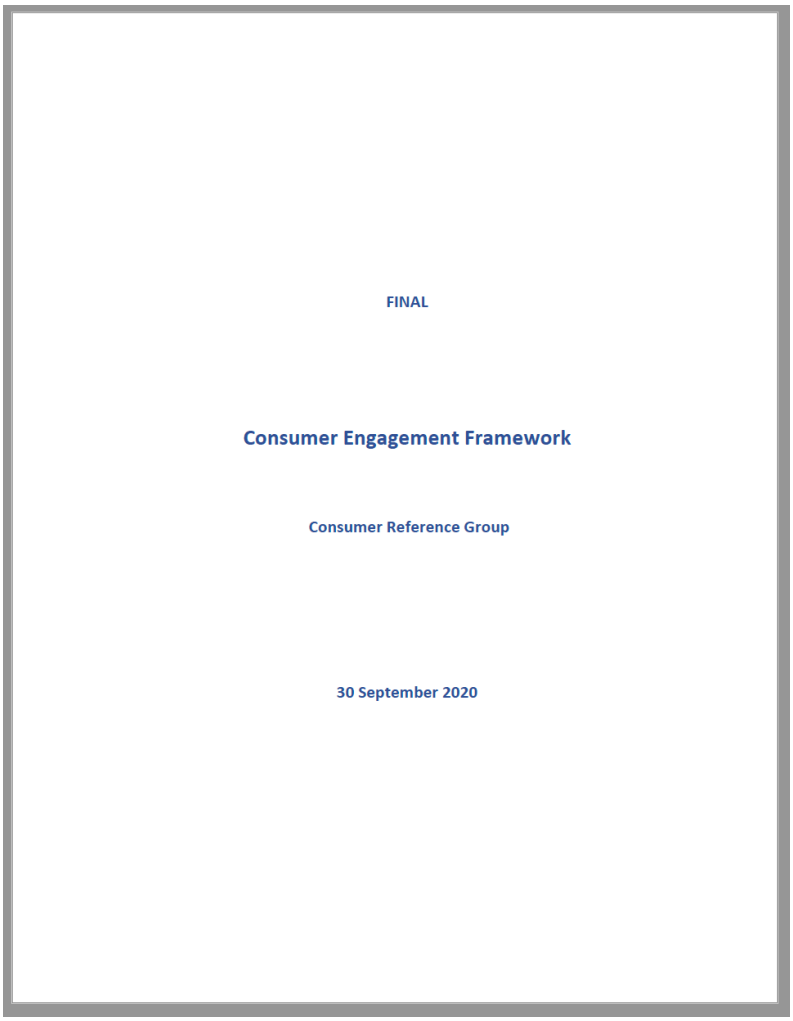
Appendix B: Consumer Engagement Framework

A full copy of the CRG's *Consumer Engagement Framework*, which is a separate document, forms part of this submission.



FINAL

Consumer Engagement Framework

Consumer Reference Group

30 September 2020

Appendix B: Overview of consumer interviews

Interview questions

1. What information do you use to inform your views about consumer perspectives?
2. What level of confidence and trust do you have in the networks on rate of return issues?
    a. If the networks make a claim, how reasonable do you think their claim is?
3. Do you believe the AER's decisions on rate of return are balanced or not?
    a. How much influence do you think networks have on the AER's decision making with respect to rate of return, compared to the consumers?
    b. Do you think there is an asymmetry of resources which impacts on overall influence?
4. Assuming your usage were to remain the same, how important are energy prices to :
    a. Households?
    b. Businesses?
5. Assume all the other components of the energy bill stayed the same, if network prices were to [increase][decrease], how do you think
    a. Residential consumers might respond in terms of behaviours, noting that network prices make up between 30-40% of bills?
        i. Why do you say that?
    b. Businesses might respond in terms of behaviours, noting that network prices make up between 30-40% of bills?
        i. Why do you say that?
6. [Technical question] The AER is considering if the approach to calculating the return on equity should be changed for the 2022 RoRI. In 2013, the AER relied on the Sharpe Lintner Capital Asset Pricing Model (CAPM) with input from the Black Capital Asset Pricing Model and Dividend Growth Model (DGM). In 2018, the AER relied solely on the Sharpe Lintner CAPM model. Now the AER is considering including the DGM again as they say it may enhance their forward-looking ability.
   How does this change of approaches impact on consumer confidence, noting that a change to incorporate the DGM is likely to lead to an increase in prices?
7. [Technical question] The AER is considering if the approach to calculating the return on equity should be changed for the 2022 RoRI. Changes to the rate of return may have impacts on consumer prices and to a lesser extent the level and quality of services provided.
    a. How do you feel about the following proposed change?:

       the AER could look at the equity beta (the extent to which returns to equity for network businesses vary with market conditions in general), which may

involve finding comparable firms that are publicly traded and use these as a proxy for regulated networks. While this in itself is not a change from the AER's current methodology, the equity beta could be lower or higher in the 2020 RoRI.

b. Do you prefer keeping things as they are or would you be willing to accept a review of the equity beta, knowing that the outturn of such a review could result in a lower or higher equity beta and consequently lower or higher prices? [technical]

8. [Technical question] The AER could also look at how the market risk premium (the returns to the broader market) is calculated. In particular, the AER is looking at methodologies which are said to capture current market conditions better than the methodology they are currently using.
   Do you prefer these costs to be based more on current market conditions rather than being more stable and predictable based on historical experience, knowing that there may be times where the current cost (prices) may be significantly higher than long term averages and at times be lower?

9. [Technical question] The AER framework is based on investor returns on long life assets, and therefore the basic parameters in the rate of return are based on 10-year projections. For example, the average equity returns over the period 2023 to 2033.
   Do you think that is the best approach?

10. One of the proposals on the table is annual updating of the risk-free rate. One hypothesis is that this would lower the risk for networks. If that were to be the case, should consumers get compensated for the risk of having to face additional changes to price levels year on year (over and above the existing annual changes)?

11. Do you think there is a fair sharing of risk between consumers and networks?

    a. If consumers are asked to bear more risk, should they be compensated?

12. Just thinking about the overall share market in Australia, how risky do you believe investing in regulated energy network companies would be compared to investing in other sorts of businesses.

    a. Why do you say that?

Interview participants

Interview date	Organisation	About
25 Sep 2020	Major Energy Users (MEU) http://meu.asn.au/about.html	In 2005, the MEU brought together a number of regional energy advocacy groups representing the interests of large consumers of energy.
25 Sep 2020	Total Environment Centre	TEC is an environment advocacy organisation based in NSW.
25 Sep 2020	Business SA	Business SA is South Australia's peak Chamber of Commerce and Industry and peak employer body.
29 Sep 2020	Canegrowers	Canegrowers is a not-for-profit public company providing a professional and cohesive voice for the members of 13 local grower companies, located in all of the sugarcane regions of Queensland.
29 Sep 2020	Energy and Water Ombudsman of Victoria (EWOV) https://www.ewov.com.au	EWOV resolves disputes between Victorians and their energy and water companies.
30 Sep 2020	Energy and Water Ombudsman of NSW (EWON) https://www.ewon.com.au	EWON is the NSW government approved dispute resolution scheme for New South Wales electricity and gas customers, and some water customers.
1 Oct 2020	Ai Group	The Australian Industry Group (Ai Group) is a peak national employer organisation representing traditional, innovative and emerging industry sectors. They have been acting on behalf of businesses across Australia for nearly 150 years.
1 Oct 2020	Energy Users Association of Australia (EUAA) https://euaa.com.au	The EUAA is the peak national body representing Australian commercial and industrial electricity and gas users. EUAA membership covers a cross-section of the Australian economy including retail, manufacturing, mining, materials and food processing industries.
1 Oct 2020	Investment analyst (anonymous)	With particular interest in the energy sector
6 Oct 2020	Australian Energy Council https://www.energycouncil.com.au	The Australian Energy Council (AEC) represents 22 major electricity and downstream natural gas businesses operating in competitive wholesale

		and retail energy markets. These businesses collectively generate the overwhelming majority of electricity in Australia and sell gas and electricity to over 10 million homes and businesses.

Appendix C: AusNet Services and Spark share prices